(54) Title: BREAST, GASTRIC AND PROSTATE CANCER ASSOCIATED ANTIGENS AND USES THEREFOR

(57) Abstract: Cancer associated antigens have been identified by autologous antibody screening of libraries of nucleic acids expressed in breast, gastric and prostate cancer cells using antisera from cancer patients. The invention relates to nucleic acids and encoded polypeptides which are cancer associated antigens expressed in patients afflicted with cancer. The invention provides, inter alia, isolated nucleic acid molecules, expression vectors containing those molecules and host cells transfected with those molecules. The invention also provides isolated proteins and peptides, antibodies to those proteins and peptides and cytotoxic T lymphocytes which recognize the proteins and peptides. Fragments of the foregoing including functional fragments and variants also are provided. Kits containing the foregoing molecules additionally are provided. The molecules provided by the invention can be used in the diagnosis, monitoring, research, or treatment of conditions characterized by the expression of one or more cancer associated antigens.

BREAST, GASTRIC AND PROSTATE CANCER ASSOCIATED ANTIGENS AND USES THEREFOR

Field of the Invention

5   The invention relates to nucleic acids and encoded polypeptides which are cancer associated antigens expressed in patients afflicted with breast, gastric or prostate cancer. The invention also relates to agents which bind the nucleic acids or polypeptides. The nucleic acid molecules, polypeptides coded for by such molecules and peptides derived therefrom, as well as related antibodies and cytolytic T lymphocytes, are useful, *inter alia*, in diagnostic and

10   therapeutic contexts.

Background of the Invention

The mechanism by which T cells recognize foreign materials has been implicated in cancer. A number of cytolytic T lymphocyte (CTL) clones directed against autologous

15   melanoma antigens, testicular antigens, and melanocyte differentiation antigens have been described. In many instances, the antigens recognized by these clones have been characterized.

The use of autologous CTLs for identifying tumor antigens requires that the target cells which express the antigens can be cultured *in vitro* and that stable lines of autologous

20   CTL clones which recognize the antigen-expressing cells can be isolated and propagated. While this approach has worked well for melanoma antigens, other tumor types, such as epithelial cancers including breast and colon cancer, have proved refractory to the approach.

More recently another approach to the problem has been described by Sahin et al. (*Proc. Natl. Acad. Sci. USA* 92:11810-11813, 1995). According to this approach, autologous

25   antisera are used to identify immunogenic protein antigens expressed in cancer cells by screening expression libraries constructed from tumor cell cDNA. Antigen-encoding clones so identified have been found to elicit a high-titer humoral immune response in the patients from which the antisera were obtained. Such a high-titer IgG response implies helper T cell recognition of the detected antigen. These tumor antigens can then be screened for the

30   presence of MHC/HLA class I and class II motifs and reactivity with CTLs.

Since the individual tumor antigens presently known may be expressed only in a fraction of tumors, the availability of additional tumor antigens would significantly enlarge the

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proportion of patients who are potentially eligible for therapeutic interventions. Thus there presently is a need for additional tumor antigens for development of therapeutics and diagnostics applicable to a greater number of cancer patients having various cancers.

The invention is elaborated upon further in the disclosure which follows.

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Summary of the Invention

Autologous antibody screening has now been applied to breast, gastric and prostate cancer using antisera from cancer patients. Numerous cancer associated antigens have been identified. The invention provides, *inter alia*, isolated nucleic acid molecules, expression

10   vectors containing those molecules and host cells transfected with those molecules. The invention also provides isolated proteins and peptides, antibodies to those proteins and peptides and CTLs which recognize the proteins and peptides. Fragments including functional fragments and variants of the foregoing also are provided. Kits containing the foregoing molecules additionally are provided. The foregoing can be used in the diagnosis,

15   monitoring, research, or treatment of conditions characterized by the expression of one or more cancer associated antigens.

Prior to the present invention, only a handful of cancer associated genes had been identified in the past 20 years. The invention involves the surprising discovery of several genes, some previously known and some previously unknown, which are expressed in

20   individuals who have cancer. These individuals all have serum antibodies against the proteins (or fragments thereof) encoded by these genes. Thus, abnormally expressed genes are recognized by the host's immune system and therefore can form a basis for diagnosis, monitoring and therapy.

The invention involves the use of a single material, a plurality of different materials

25   and even large panels and combinations of materials. For example, a single gene, a single protein encoded by a gene, a single functional fragment thereof, a single antibody thereto, etc. can be used in methods and products of the invention. Likewise, pairs, groups and even panels of these materials and optionally other cancer associated antigen genes and/or gene products can be used for diagnosis, monitoring and therapy. The pairs, groups or panels can

30   involve 2, 3, 4, 5 or more genes, gene products, fragments thereof or agents that recognize such materials. A plurality of such materials are not only useful in monitoring, typing, characterizing and diagnosing cells abnormally expressing such genes, but a plurality of such

materials can be used therapeutically. An example of the use of a plurality of such materials for the prevention, delay of onset, amelioration, etc. of cancer cells, which express or will express such genes prophylactically or acutely. Any and all combinations of the genes, gene products, and materials which recognize the genes and gene products can be tested and identified for use according to the invention. It would be far too lengthy to recite all such combinations; those skilled in the art, particularly in view of the teaching contained herein, will readily be able to determine which combinations are most appropriate for which circumstances.

As will be clear from the following discussion, the invention has *in vivo* and *in vitro* uses, including for therapeutic, diagnostic, monitoring and research purposes. One aspect of the invention is the ability to fingerprint a cell expressing a number of the genes identified according to the invention by, for example, quantifying the expression of such gene products. Such fingerprints will be characteristic, for example, of the stage of the cancer, the type of the cancer, or even the effect in animal models of a therapy on a cancer. Cells also can be screened to determine whether such cells abnormally express the genes identified according to the invention.

The invention, in one aspect, is a method of diagnosing a disorder characterized by expression of a cancer associated antigen precursor coded for by a nucleic acid molecule. The method involves the steps of contacting a biological sample isolated from a subject with an agent that specifically binds to the nucleic acid molecule, an expression product thereof, or a fragment of an expression product thereof complexed with an MHC, preferably an HLA, molecule, wherein the nucleic acid molecule is a NA Group 1 nucleic acid molecule, and determining the interaction between the agent and the nucleic acid molecule, the expression product or fragment of the expression product as a determination of the disorder.

In one embodiment the agent is selected from the group consisting of (a) a nucleic acid molecule comprising NA Group 1 nucleic acid molecules or a fragment thereof, (b) a nucleic acid molecule comprising NA Group 3 nucleic acid molecules or a fragment thereof, (c) a nucleic acid molecule comprising NA Group 5 nucleic acid molecules or a fragment thereof, (d) an antibody that binds to an expression product, or a fragment thereof, of NA group 1 nucleic acids, (e) an antibody that binds to an expression product, or a fragment thereof, of NA group 3 nucleic acids, (f) an antibody that binds to an expression product, or a fragment thereof, of NA group 5 nucleic acids, (g) and agent that binds to a complex of an

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MHC, preferably HLA, molecule and a fragment of an expression product of a NA Group 1 nucleic acid, (h) an agent that binds to a complex of an MHC, preferably HLA, molecule and a fragment of an expression product of a NA group 3 nucleic acid, and (i) an agent that binds to a complex of an MHC, preferably HLA, molecule and a fragment of an expression product of a NA Group 5 nucleic acid.

The disorder may be characterized by expression of a plurality of cancer associated antigen precursors. Thus the methods of diagnosis may include use of a plurality of agents, each of which is specific for a different human cancer associated antigen precursor (including at least one of the cancer associated antigen precursors disclosed herein), and wherein said plurality of agents is at least 2, at least 3, at least 4, at least 5, at least 6, at least 7, at least 8, at least 9 or at least 10 such agents. Any of the diagnostic methods disclosed herein can be applied sequentially over time to permit determination of the prognosis or progression (or regression) of the disorder.

In each of the above embodiments the agent may be specific for a human cancer associated antigen precursor, including the breast, gastric and prostate cancer associated antigen precursors disclosed herein.

In another aspect the invention is a method for determining regression, progression or onset of a condition characterized by expression of abnormal levels of a protein encoded by a nucleic acid molecule that is a NA Group 1 molecule. The method involves the steps of monitoring a sample, from a subject who has or is suspected of having the condition, for a parameter selected from the group consisting of (i) the protein, (ii) a peptide derived from the protein, (iii) an antibody which selectively binds the protein or peptide, and (iv) cytolytic T cells specific for a complex of the peptide derived from the protein and an MHC molecule, as a determination of regression, progression or onset of said condition. In one embodiment the sample is a body fluid, a body effusion or a tissue.

In another embodiment the step of monitoring comprises contacting the sample with a detectable agent selected from the group consisting of (a) an antibody which selectively binds the protein of (i), or the peptide of (ii), (b) a protein or peptide which binds the antibody of (iii), and (c) a cell which presents the complex of the peptide and MHC molecule of (iv). In a preferred embodiment the antibody, the protein, the peptide or the cell is labeled with a radioactive label or an enzyme. The sample in a preferred embodiment is assayed for the peptide. Preferably samples are isolated from tissue or bodily fluids of the subject at

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sequential time points, and the samples are assayed as a determination of the regression, progression or onset of the condition from a first sequential time point to a second sequential time point.

According to another embodiment the nucleic acid molecule is one of the following: a NA Group 3 molecule or a NA Group 5 molecule. In yet another embodiment the protein is a plurality of proteins, the parameter is a plurality of parameters, each of the plurality of parameters being specific for a different one of the plurality of proteins.

The invention in another aspect is a pharmaceutical preparation for a human subject. The pharmaceutical preparation includes an agent which when administered to the subject enriches selectively the presence of complexes of an HLA molecule and a human cancer associated antigen, and a pharmaceutically acceptable carrier, wherein the human cancer associated antigen is a fragment of a human cancer associated antigen precursor encoded by a nucleic acid molecule which comprises a NA Group 1 molecule. In one embodiment the nucleic acid molecule is a NA Group 3 nucleic acid molecule.

The agent in one embodiment comprises a plurality of agents, each of which enriches selectively in the subject complexes of an HLA molecule and a different human cancer associated antigen. Preferably the plurality is at least two, at least three, at least four or at least 5 different such agents.

In another embodiment the agent is selected from the group consisting of (1) an isolated polypeptide comprising the human cancer associated antigen, or a functional variant thereof, (2) an isolated nucleic acid operably linked to a promoter for expressing the isolated polypeptide, or functional variant thereof, (3) a host cell expressing the isolated polypeptide, or functional variant thereof, and (4) isolated complexes of the polypeptide, or functional variants thereof, and an HLA molecule.

The agent may be a cell expressing an isolated polypeptide. In one embodiment the agent is a cell expressing an isolated polypeptide comprising the human cancer associated antigen or a functional variant thereof. In another embodiment the agent is a cell expressing an isolated polypeptide comprising the human cancer associated antigen or a functional variant thereof, and wherein the cell expresses an HLA molecule that binds the polypeptide. The cell can express one or both of the polypeptide and HLA molecule recombinantly. In preferred embodiments the cell is nonproliferative. In yet another embodiment the agent is at least two, at least three, at least four or at least five different polypeptides, each representing a

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different human cancer associated antigen or functional variant thereof.

The agent in one embodiment is a PP Group 2 polypeptide. In other embodiments the agent is a PP Group 3 polypeptide or a PP Group 4 polypeptide.

In an embodiment each of the pharmaceutical preparations described herein also includes an adjuvant.

According to another aspect the invention, a composition is provided which includes an isolated agent that binds selectively a PP Group 1 polypeptide. In separate embodiments the agent binds selectively to a polypeptide selected from the following: a PP Group 2 polypeptide, a PP Group 3 polypeptide, a PP Group 4 polypeptide, and a PP Group 5 polypeptide. In other embodiments, the agent is a plurality of different agents that bind selectively at least two, at least three, at least four, or at least five different such polypeptides. In each of the above described embodiments the agent may be an antibody.

In another aspect the invention is a composition of matter composed of a conjugate of the agent of the above-described compositions of the invention and a therapeutic or diagnostic agent. Preferably the conjugate is of the agent and a therapeutic or diagnostic that is an antineoplastic.

The invention in another aspect is a pharmaceutical composition which includes an isolated nucleic acid molecule selected from the group consisting of: (1) NA Group 1 molecules, and (2) NA Group 2 molecules, and a pharmaceutically acceptable carrier. In one embodiment the isolated nucleic acid molecule comprises a NA Group 3 or NA Group 4 molecule. In another embodiment the isolated nucleic acid molecule comprises at least two isolated nucleic acid molecules coding for two different polypeptides, each polypeptide comprising a different cancer associated antigen.

Preferably the pharmaceutical composition also includes an expression vector with a promoter operably linked to the isolated nucleic acid molecule. In another embodiment the pharmaceutical composition also includes a host cell recombinantly expressing the isolated nucleic acid molecule.

According to another aspect of the invention a pharmaceutical composition is provided. The pharmaceutical composition includes an isolated polypeptide comprising a PP Group 1 or a PP Group 2 polypeptide, and a pharmaceutically acceptable carrier. In one embodiment the isolated polypeptide comprises a PP Group 3 or a PP Group 4 polypeptide.

In another embodiment the isolated polypeptide comprises at least two different

polypeptides, each comprising a different cancer associated antigen at least one of which is
encoded by a NA group 1 molecule as disclosed herein. In separate embodiments the isolated
polypeptides are selected from the following: breast cancer polypeptides or HLA binding
fragments thereof and gastric cancer polypeptides or HLA binding fragments thereof.

5   In an embodiment each of the pharmaceutical compositions described herein also
includes an adjuvant.

           Another aspect the invention is an isolated nucleic acid molecule comprising a NA
Group 3 molecule. Another aspect the invention is an isolated nucleic acid molecule
comprising a NA Group 4 molecule.

10   The invention in another aspect is an isolated nucleic acid molecule selected from the
group consisting of (a) a fragment of a nucleic acid selected from the group of nucleic acid
molecules consisting of SEQ ID Nos:1-593, of sufficient length to represent a sequence
unique within the human genome, and identifying a nucleic acid encoding a human cancer
associated antigen precursor, (b) complements of (a), provided that the fragment includes a
15   sequence of contiguous nucleotides which is not identical to any sequence selected from the
sequence group consisting of (1) sequences having the GenBank accession numbers of Table
1 and other sequences publicly available as of the filing date of this application, (2)
complements of (1), and (3) fragments of (1) and (2). Preferably the unique fragments are
fragments of a nucleic acid selected from the group of nucleic acid molecules consisting of
20   SEQ ID NOs:12, 15, 34-59, 61, 62, 83-95, 186, 190-205, 297, 327-332, and 335-352.

           In one embodiment the sequence of contiguous nucleotides is selected from the group
consisting of: (1) at least two contiguous nucleotides nonidentical to the sequences in Table 1,
(2) at least three contiguous nucleotides nonidentical to the sequences in Table 1, (3) at least
four contiguous nucleotides nonidentical to the sequences in Table 1, (4) at least five
25   contiguous nucleotides nonidentical to the sequences in Table 1, (5) at least six contiguous
nucleotides nonidentical to the sequences in Table 1, or (6) at least seven contiguous
nucleotides nonidentical to the sequences in Table 1.

           In another embodiment the fragment has a size selected from the group consisting of at
least: 8 nucleotides, 10 nucleotides, 12 nucleotides, 14 nucleotides, 16 nucleotides, 18
30   nucleotides, 20, nucleotides, 22 nucleotides, 24 nucleotides, 26 nucleotides, 28 nucleotides,
30 nucleotides, 50 nucleotides, 75 nucleotides, 100 nucleotides, 200 nucleotides, 1000
nucleotides and every integer length therebetween.

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In yet another embodiment the molecule encodes a polypeptide which, or a fragment of which, binds a human HLA receptor (e.g., class I or class II) or a human antibody.

Another aspect of the invention is an expression vector comprising an isolated nucleic acid molecule of the invention described above operably linked to a promoter.

According to one aspect the invention is an expression vector comprising a nucleic acid operably linked to a promoter, wherein the nucleic acid is a NA Group 1 or Group 2 molecule. In another aspect the invention is an expression vector comprising a NA Group 1 or Group 2 molecule and a nucleic acid encoding an MHC, preferably HLA, molecule.

In yet another aspect the invention is a host cell transformed or transfected with an expression vector of the invention described above.

In another aspect the invention is a host cell transformed or transfected with an expression vector comprising an isolated nucleic acid molecule of the invention described above operably linked to a promoter, or an expression vector comprising a nucleic acid operably linked to a promoter, wherein the nucleic acid is a NA Group 1 or 2 molecule and further comprising a nucleic acid encoding HLA.

According to another aspect of the invention an isolated polypeptide encoded by the isolated nucleic acid molecules of the invention, described above, is provided. These include PP Group 1-5 polypeptides. The invention also includes a fragment of the polypeptide which is immunogenic. In one embodiment the fragment, or a portion of the fragment, binds HLA or a human antibody.

The invention includes in another aspect an isolated fragment of a human cancer associated antigen precursor which, or a portion of which, binds HLA or a human antibody, wherein the precursor is encoded by a nucleic acid molecule that is a NA Group 1 molecule. In one embodiment the fragment is part of a complex with HLA. In another embodiment the fragment is between 8 and 12 amino acids in length. In another embodiment the invention includes an isolated polypeptide comprising a fragment of the polypeptide of sufficient length to represent a sequence unique within the human genome and identifying a polypeptide that is a human cancer associated antigen precursor.

According to another aspect of the invention a kit for detecting the presence of the expression of a cancer associated antigen precursor is provided. The kit includes a pair of isolated nucleic acid molecules each of which consists essentially of a molecule selected from the group consisting of (a) a 12-32 nucleotide contiguous segment of the nucleotide sequence

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of any of the NA Group 1 molecules and (b) complements of (a), wherein the contiguous segments are nonoverlapping. In one embodiment the pair of isolated nucleic acid molecules is constructed and arranged to selectively amplify an isolated nucleic acid molecule that is a NA Group 3 molecule. Preferably, the pair amplifies a human NA Group 3 molecule.

5   According to another aspect of the invention a method for treating a subject with a disorder characterized by expression of a human cancer associated antigen precursor is provided. The method includes the step of administering to the subject an amount of an agent, which enriches selectively in the subject the presence of complexes of an HLA molecule and a human cancer associated antigen, effective to ameliorate the disorder, wherein the human

10   cancer associated antigen is a fragment of a human cancer associated antigen precursor encoded by a nucleic acid molecule selected from the group consisting of (a) a nucleic acid molecule comprising NA group 1 nucleic acid molecules, (b) a nucleic acid molecule comprising NA group 3 nucleic acid molecules, (c) a nucleic acid molecule comprising NA group 5 nucleic acid molecules.

15   In one embodiment the disorder is characterized by expression of a plurality of human cancer associated antigen precursors and wherein the agent is a plurality of agents, each of which enriches selectively in the subject the presence of complexes of an HLA molecule and a different human cancer associated antigen. Preferably the plurality is at least 2, at least 3, at least 4, or at least 5 such agents.

20   In another embodiment the agent is an isolated polypeptide selected from the group consisting of PP Group 1, PP Group 2, PP Group 3, PP Group 4, and PP group 5 polypeptides.

In yet another embodiment the disorder is cancer.

According to another aspect the invention is a method for treating a subject having a condition characterized by expression of a cancer associated antigen precursor in cells of the

25   subject. The method includes the steps of (i) removing an immunoreactive cell containing sample from the subject, (ii) contacting the immunoreactive cell containing sample to the host cell under conditions favoring production of cytolytic T cells against a human cancer associated antigen which is a fragment of the precursor, (iii) introducing the cytolytic T cells to the subject in an amount effective to lyse cells which express the human cancer associated

30   antigen, wherein the host cell is transformed or transfected with an expression vector comprising an isolated nucleic acid molecule operably linked to a promoter, the isolated nucleic acid molecule being selected from the group of nucleic acid molecules consisting of

NA Group 1, NA Group 2, NA Group 3, NA Group 4, NA Group 5.

In one embodiment the host cell recombinantly expresses an HLA molecule which binds the human cancer associated antigen. In another embodiment the host cell endogenously expresses an HLA molecule which binds the human cancer associated antigen.

The invention includes in another aspect a method for treating a subject having a condition characterized by expression of a cancer associated antigen precursor in cells of the subject. The method includes the steps of (i) identifying a nucleic acid molecule expressed by the cells associated with said condition, wherein said nucleic acid molecule is a NA Group 1 molecule (ii) transfecting a host cell with a nucleic acid molecule selected from the group consisting of (a) the nucleic acid molecule identified, (b) a fragment of the nucleic acid molecule identified which includes a segment coding for a cancer associated antigen, (c) deletions, substitutions or additions to (a) or (b), and (d) degenerates of (a), (b), or (c); (iii) culturing said transfected host cells to express the transfected nucleic acid molecule, and; (iv) introducing an amount of said host cells or an extract thereof to the subject effective to increase an immune response against the cells of the subject associated with the condition. Preferably, the antigen is a human antigen and the subject is a human.

In one embodiment the method also includes the step of (a) identifying an MHC molecule which presents a portion of an expression product of the nucleic acid molecule, wherein the host cell expresses the same MHC molecule as identified in (a) and wherein the host cell presents an MHC binding portion of the expression product of the nucleic acid molecule.

In another embodiment the method also includes the step of treating the host cells to render them non-proliferative.

In yet another embodiment the immune response comprises a B-cell response or a T cell response. Preferably the response is a T-cell response which comprises generation of cytolytic T-cells specific for the host cells presenting the portion of the expression product of the nucleic acid molecule or cells of the subject expressing the human cancer associated antigen.

In another embodiment the nucleic acid molecule is a NA Group 3 molecule.

Another aspect of the invention is a method for treating or diagnosing or monitoring a subject having a condition characterized by expression of an abnormal amount of a protein encoded by a nucleic acid molecule that is a NA Group 1 molecule. The method includes the

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step of administering to the subject an antibody which specifically binds to the protein or a peptide derived therefrom, the antibody being coupled to a therapeutically useful agent, in an amount effective to treat the condition.

In one embodiment the antibody is a monoclonal antibody. Preferably the monoclonal
5   antibody is a chimeric antibody or a humanized antibody.

In another aspect the invention is a method for treating a condition characterized by expression in a subject of abnormal amounts of a protein encoded by a nucleic acid molecule that is a NA Group 1 nucleic acid molecule. The method involves the step of administering to a subject at least one of the pharmaceutical compositions of the invention described above in
10   an amount effective to prevent, delay the onset of, or inhibit the condition in the subject. In one embodiment the condition is cancer. In another embodiment the method includes the step of first identifying that the subject expresses in a tissue abnormal amounts of the protein.

The invention in another aspect is a method for treating a subject having a condition characterized by expression of abnormal amounts of a protein encoded by a nucleic acid
15   molecule that is a NA Group 1 nucleic acid molecule. The method includes the steps of (i) identifying cells from the subject which express abnormal amounts of the protein; (ii) isolating a sample of the cells; (iii) cultivating the cells, and (iv) introducing the cells to the subject in an amount effective to provoke an immune response against the cells.

In one embodiment the method includes the step of rendering the cells non-
20   proliferative, prior to introducing them to the subject.

In another aspect the invention is a method for treating a pathological cell condition characterized by abnormal expression of a protein encoded by a nucleic acid molecule that is a NA Group 1 nucleic acid molecule. The method includes the step of administering to a subject in need thereof an effective amount of an agent which inhibits the expression or
25   activity of the protein.

In one embodiment the agent is an inhibiting antibody which selectively binds to the protein and wherein the antibody is a monoclonal antibody, a chimeric antibody, a humanized antibody or a fragment thereof. In another embodiment the agent is an antisense nucleic acid molecule which selectively binds to the nucleic acid molecule which encodes the protein. In
30   yet another important embodiment the nucleic acid molecule is a NA Group 3 nucleic acid molecule.

The invention includes in another aspect a composition of matter useful in stimulating

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an immune response to a plurality of proteins encoded by nucleic acid molecules that are NA Group 1 molecules. The composition is a plurality of peptides derived from the amino acid sequences of the proteins, wherein the peptides bind to one or more MHC molecules presented on the surface of the cells which express an abnormal amount of the protein.

5   In one embodiment at least a portion of the plurality of peptides bind to MHC molecules and elicit a cytolytic response thereto. In another embodiment the composition of matter includes an adjuvant. In another embodiment the adjuvant is a saponin, GM-CSF, or an interleukin. In still another embodiment, the compositions also includes at least one peptide useful in stimulating an immune response to at least one protein which is not encoded

10   by nucleic acid molecules that are NA Group 1 molecules, wherein the at least one peptide binds to one or more MHC molecules.

According to another aspect the invention is an isolated antibody which selectively binds to a complex of: (i) a peptide derived from a protein encoded by a nucleic acid molecule that is a NA Group 1 molecule and (ii) and an MHC molecule to which binds the peptide to

15   form the complex, wherein the isolated antibody does not bind to (i) or (ii) alone.

In one embodiment the antibody is a monoclonal antibody, a chimeric antibody, a humanized antibody or a fragment thereof.

The invention also involves the use of the genes, gene products, fragments thereof, agents which bind thereto, and so on in the preparation of medicaments. A particular

20   medicament is for treating cancers including, e.g., one or more of cancers of the breast, cervix, ovary, prostate, testis, lung, colon, pancreas, stomach, liver, skin (e.g., melanoma), bladder, head and neck, thyroid, blood cells, bone and kidney. Diagnostics for specific cancers and groups of cancers also are envisioned.

In certain preferred embodimenst, the nucleic acid molecules are selected from the

25   group consisting of SEQ ID NOs:1-18, and the polypeptides are encoded by these preferred nucleic acid molecules.

Still other embodiments and aspects of the invention will become apparent in connection with the description of the invention which follows.

30   **Detailed Description of the Invention**
In the above summary and in the ensuing description, lists of sequences are provided. The lists are meant to embrace each single sequence separately, two or more sequences

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together where they form a part of the same gene, any combination of two or more sequences which relate to different genes, including and up to the total number on the list, as if each and every combination were separately and specifically enumerated. Likewise, when mentioning fragment size, it is intended that a range embrace the smallest fragment mentioned to the full-

5   length of the sequence (less one nucleotide or amino acid so that it is a fragment), each and every fragment length intended as if specifically enumerated. Thus, if a fragment could be between 10 and 15 in length, it is explicitly meant to mean 10, 11, 12, 13, 14, or 15 in length.

The summary and the claims mention antigen precursors and antigens. As used in the summary and in the claims, a precursor is substantially the full-length protein encoded by the

10   coding region of the isolated DNA and the antigen is a peptide which complexes with MHC, preferably HLA, and which participates in the immune response as part of that complex. Such antigens are typically 9 amino acids long, although this may vary slightly.

As used herein, a subject is a human, non-human primate, cow, horse, pig, sheep, goat, dog, cat or rodent. In all embodiments human cancer antigens and human subjects are

15   preferred.

The present invention in one aspect involves the cloning of cDNAs encoding human cancer associated antigen precursors using autologous antisera of subjects having breast, gastric or prostate cancer. The sequences of the clones representing genes identified according to the methods described herein are presented in the attached Sequence Listing. Of

20   the foregoing, it can be seen that some of the clones are considered completely novel as no coding regions were found in the databases searched. Other clones are novel but have some nucleotide or amino acid homologies to sequences deposited in databases (mainly EST sequences). Nevertheless, the entire gene sequence was not previously known. In some cases no function was suspected and in other cases, even if a function was suspected, it was not

25   known that the gene was associated with cancer, or with a particular cancer. In all cases, it was not known or suspected that the gene encoded a cancer antigen which reacted with an antibody from autologous sera. Analysis of the clone sequences by comparison to nucleic acid and protein databases determined that still other of the clones surprisingly are closely related to other previously-cloned genes. The sequences of these related genes is also

30   presented in the Sequence Listing. The nature of the foregoing genes as encoding antigens recognized by the immune systems of cancer patients is, of course, unexpected.

The invention thus involves in one aspect cancer associated antigen polypeptides,

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genes encoding those polypeptides, functional modifications and variants of the foregoing, useful fragments of the foregoing, as well as diagnostics and therapeutics relating thereto.

Homologs and alleles of the cancer associated antigen nucleic acids of the invention can be identified by conventional techniques. Thus, an aspect of the invention is those nucleic
5   acid sequences which code for cancer associated antigen precursors. Because this application contains so many sequences, the following chart is provided to identify the various groups of sequences discussed in the claims and in the summary:

Nucleic Acid Sequences

10   NA Group 1.   (a) nucleic acid molecules which hybridize under stringent conditions to a molecule consisting of a nucleic acid sequence selected from the group consisting of nucleic acid sequences among SEQ ID NOs: 1-593, and which code for a cancer associated antigen precursor,

            (b) deletions, additions and substitutions which code for a respective cancer
15   associated antigen precursor,

            (c) nucleic acid molecules that differ from the nucleic acid molecules of (a) or (b) in codon sequence due to the degeneracy of the genetic code, and

            (d) complements of (a), (b) or (c).

20   NA Group 2.   Fragments of NA Group 1, which code for a polypeptide which, or a portion of which, binds an MHC molecule to form a complex recognized by an autologous antibody or lymphocyte.

       NA Group 3.   The subset of NA Group 1 where the nucleotide sequence is selected from the
25   group consisting of:

            (a) previously unknown human nucleic acids coding for a human cancer associated antigen precursor, e.g., SEQ ID NOs:12, 15, 34-59, 61, 62, 83-95, 186, 190-205, 297, 327-332, and 335-352,

            (b) deletions, additions and substitutions which code for a respective human
30   cancer associated antigen precursor,

            (c) nucleic acid molecules that differ from the nucleic acid molecules of (a) or (b) in codon sequence due to the degeneracy of the genetic code, and

(d) complements of (a), (b) or (c).

NA Group 4.   Fragments of NA Group 3, which code for a polypeptide which, or a portion of
which, binds to an MHC molecule to form a complex recognized by an autologous antibody
or lymphocyte.

NA Group 5.   A subset of NA Group 1, comprising human cancer associated antigens that
react with allogeneic cancer antisera.

<u>Polypeptide Sequences</u>

PP Group 1.   Polypeptides encoded by NA Group 1.

PP Group 2.   Polypeptides encoded by NA Group 2.

PP Group 3.   Polypeptides encoded by NA Group 3.

PP Group 4.   Polypeptides encoded by NA Group 4.

PP Group 5.   Polypeptides encoded by NA Group 5.

Particularly preferred polypeptides are those recognized by allogeneic sera of cancer
patients, but not by non-cancer patient control sera. For example, as shown in the Examples
below, polypeptides encoded by SEQ ID NOs:1-18 are recognized only by antibodies in
cancer patients antisera.

The term "stringent conditions" as used herein refers to parameters with which the art
is familiar. Nucleic acid hybridization parameters may be found in references which compile
such methods, e.g. *Molecular Cloning: A Laboratory Manual*, J. Sambrook, et al., eds.,
Second Edition, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York, 1989,
or *Current Protocols in Molecular Biology*, F.M. Ausubel, et al., eds., John Wiley & Sons,
Inc., New York. More specifically, stringent conditions, as used herein, refers, for example,
to hybridization at 65°C in hybridization buffer (3.5 x SSC, 0.02% Ficoll, 0.02% polyvinyl
pyrrolidone, 0.02% Bovine Serum Albumin, 2.5 mM NaH_2PO_4(pH7), 0.5% SDS, 2 mM
EDTA). SSC is 0.15 M sodium chloride/0.15 M sodium citrate, pH7; SDS is sodium dodecyl
sulphate; and EDTA is ethylenediaminetetracetic acid. After hybridization, the membrane
upon which the DNA is transferred is washed, for example, in 2 x SSC at room temperature
and then at 0.1 - 0.5 x SSC/0.1 x SDS at temperatures up to 68°C.

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There are other conditions, reagents, and so forth which can be used, which result in a similar degree of stringency. The skilled artisan will be familiar with such conditions, and thus they are not given here. It will be understood, however, that the skilled artisan will be able to manipulate the conditions in a manner to permit the clear identification of homologs

5   and alleles of cancer associated antigen nucleic acids of the invention (e.g., by using lower stringency conditions). The skilled artisan also is familiar with the methodology for screening cells and libraries for expression of such molecules which then are routinely isolated, followed by isolation of the pertinent nucleic acid molecule and sequencing.

In general homologs and alleles typically will share at least 80% nucleotide identity

10   and/or at least 90% amino acid identity to the sequences of cancer associated antigen nucleic acid and polypeptides, respectively, in some instances will share at least 90% nucleotide identity and/or at least 95% amino acid identity and in still other instances will share at least 95% nucleotide identity and/or at least 99% amino acid identity. The homology can be calculated using various, publicly available software tools developed by NCBI (Bethesda,

15   Maryland) that can be obtained through the Internet (ftp:/ncbi.nlm.nih.gov/pub/). Exemplary tools include the BLAST system available at http://www.ncbi.nlm.nih.gov, preferably using default settings. Pairwise and ClustalW alignments (BLOSUM30 matrix setting) as well as Kyle-Doolittle hydropathic analysis can be obtained using the MacVector sequence analysis software (Oxford Molecular Group). Watson-Crick complements of the foregoing nucleic

20   acids also are embraced by the invention.

In screening for cancer associated antigen genes, a Southern blot may be performed using the foregoing conditions, together with a radioactive probe. After washing the membrane to which the DNA is finally transferred, the membrane can be placed against X-ray film to detect the radioactive signal. In screening for the expression of cancer associated

25   antigen nucleic acids, Northern blot hybridizations using the foregoing conditions can be performed on samples taken from breast, gastric or prostate cancer patients or subjects suspected of having a condition characterized by expression of the cancer associated antigen genes disclosed herein. Amplification protocols such as polymerase chain reaction using primers which hybridize to the sequences presented also can be used for detection of the

30   cancer associated antigen genes or expression thereof.

The breast, gastric and prostate cancer associated genes correspond to SEQ ID Nos:1-593. These sequences represent genes previously known in humans and genes previously

unknown in humans (e.g., SEQ ID NOs:12, 15, 34-59, 61, 62, 83-95, 186, 190-205, 297, 327-332, and 335-352). Preferred breast, gastric and prostate cancer associated antigens for the methods of diagnosis disclosed herein are those which encode polypeptides that react with allogeneic cancer antisera (i.e. NA Group 5). Encoded polypeptides (e.g., proteins), peptides

5   and antisera thereto are also preferred for diagnosis.

        As used herein with respect to nucleic acids, the term "isolated" means: (i) amplified *in vitro* by, for example, polymerase chain reaction (PCR); (ii) recombinantly produced by cloning; (iii) purified, as by cleavage and gel separation; or (iv) synthesized by, for example, chemical synthesis. An isolated nucleic acid is one which is readily manipulable by

10 recombinant DNA techniques well known in the art. Thus, a nucleotide sequence contained in a vector in which 5' and 3' restriction sites are known or for which polymerase chain reaction (PCR) primer sequences have been disclosed is considered isolated but a nucleic acid sequence existing in its native state in its natural host is not. An isolated nucleic acid may be substantially purified, but need not be. For example, a nucleic acid that is isolated within a

15 cloning or expression vector is not pure in that it may comprise only a tiny percentage of the material in the cell in which it resides. Such a nucleic acid is isolated, however, as the term is used herein because it is readily manipulable by standard techniques known to those of ordinary skill in the art. An isolated nucleic acid as used herein is not a naturally occurring chromosome.

20   As used herein with respect to polypeptides, "isolated" means separated from its native environment and present in sufficient quantity to permit its identification or use. Isolated, when referring to a protein or polypeptide, means, for example: (i) selectively produced by expression cloning or (ii) purified as by chromatography or electrophoresis. Isolated proteins or polypeptides may be, but need not be, substantially pure. The term "substantially pure"

25 means that the proteins or polypeptides are essentially free of other substances with which they may be found in nature or *in vivo* systems to an extent practical and appropriate for their intended use. Substantially pure polypeptides may be produced by techniques well known in the art. Because an isolated protein may be admixed with a pharmaceutically acceptable carrier in a pharmaceutical preparation, the protein may comprise only a small percentage by

30 weight of the preparation. The protein is nonetheless isolated in that it has been separated from the substances with which it may be associated in living systems, i.e. isolated from other proteins.

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The invention also includes degenerate nucleic acids which include alternative codons to those present in the native materials. For example, serine residues are encoded by the codons TCA, AGT, TCC, TCG, TCT and AGC. Each of the six codons is equivalent for the purposes of encoding a serine residue. Thus, it will be apparent to one of ordinary skill in the
5   art that any of the serine-encoding nucleotide triplets may be employed to direct the protein synthesis apparatus, *in vitro* or *in vivo*, to incorporate a serine residue into an elongating cancer associated antigen polypeptide. Similarly, nucleotide sequence triplets which encode other amino acid residues include, but are not limited to: CCA, CCC, CCG and CCT (proline codons); CGA, CGC, CGG, CGT, AGA and AGG (arginine codons); ACA, ACC, ACG and
10   ACT (threonine codons); AAC and AAT (asparagine codons); and ATA, ATC and ATT (isoleucine codons). Other amino acid residues may be encoded similarly by multiple nucleotide sequences. Thus, the invention embraces degenerate nucleic acids that differ from the biologically isolated nucleic acids in codon sequence due to the degeneracy of the genetic code.

15   The invention also provides modified nucleic acid molecules which include additions, substitutions and deletions of one or more nucleotides. In preferred embodiments, these modified nucleic acid molecules and/or the polypeptides they encode retain at least one activity or function of the unmodified nucleic acid molecule and/or the polypeptides, such as antigenicity, enzymatic activity, receptor binding, formation of complexes by binding of
20   peptides by MHC class I and class II molecules, etc. In certain embodiments, the modified nucleic acid molecules encode modified polypeptides, preferably polypeptides having conservative amino acid substitutions as are described elsewhere herein. The modified nucleic acid molecules are structurally related to the unmodified nucleic acid molecules and in preferred embodiments are sufficiently structurally related to the unmodified nucleic acid
25   molecules so that the modified and unmodified nucleic acid molecules hybridize under stringent conditions known to one of skill in the art.

For example, modified nucleic acid molecules which encode polypeptides having single amino acid changes can be prepared. Each of these nucleic acid molecules can have one, two or three nucleotide substitutions exclusive of nucleotide changes corresponding to
30   the degeneracy of the genetic code as described herein. Likewise, modified nucleic acid molecules which encode polypeptides having two amino acid changes can be prepared which have, e.g., 2-6 nucleotide changes. Numerous modified nucleic acid molecules like these will

be readily envisioned by one of skill in the art, including for example, substitutions of nucleotides in codons encoding amino acids 2 and 3, 2 and 4, 2 and 5, 2 and 6, and so on. In the foregoing example, each combination of two amino acids is included in the set of modified nucleic acid molecules, as well as all nucleotide substitutions which code for the amino acid substitutions. Additional nucleic acid molecules that encode polypeptides having additional substitutions (i.e., 3 or more), additions or deletions (e.g., by introduction of a stop codon or a splice site(s)) also can be prepared and are embraced by the invention as readily envisioned by one of ordinary skill in the art. Any of the foregoing nucleic acids or polypeptides can be tested by routine experimentation for retention of structural relation or activity to the nucleic acids and/or polypeptides disclosed herein.

The invention also provides isolated unique fragments of cancer associated antigen nucleic acid sequences or complements thereof. A unique fragment is one that is a 'signature' for the larger nucleic acid. It, for example, is long enough to assure that its precise sequence is not found in molecules within the human genome outside of the cancer associated antigen nucleic acids defined above (and human alleles). Those of ordinary skill in the art may apply no more than routine procedures to determine if a fragment is unique within the human genome. Unique fragments, however, exclude fragments completely composed of the nucleotide sequences of any of the GenBank accession numbers listed in Table 1 or other previously published sequences as of the filing date of the priority documents for sequences listed in a respective priority document or the filing date of this application for sequences listed for the first time in this application which overlap the sequences of the invention.

A fragment which is completely composed of the sequence described in the foregoing GenBank deposits is one which does not include any of the nucleotides unique to the sequences of the invention. Thus, a unique fragment must contain a nucleotide sequence other than the exact sequence of those in GenBank or fragments thereof. The difference may be an addition, deletion or substitution with respect to the GenBank sequence or it may be a sequence wholly separate from the GenBank sequence.

Unique fragments can be used as probes in Southern and Northern blot assays to identify such nucleic acids, or can be used in amplification assays such as those employing PCR. As known to those skilled in the art, large probes such as 200, 250, 300 or more nucleotides are preferred for certain uses such as Southern and Northern blots, while smaller fragments will be preferred for uses such as PCR. Unique fragments also can be used to

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produce fusion proteins for generating antibodies or determining binding of the polypeptide fragments, or for generating immunoassay components. Likewise, unique fragments can be employed to produce nonfused fragments of the cancer associated antigen polypeptides, useful, for example, in the preparation of antibodies, and in immunoassays. Unique fragments further can be used as antisense molecules to inhibit the expression of cancer associated antigen nucleic acids and polypeptides, particularly for therapeutic purposes as described in greater detail below. Unique fragments also can be used to create chimeric nucleic acid molecule or polypeptide molecules by, for example, joining all or part of the unique fragment to another nucleic acid or polypeptide molecule (homologous or not). For example, the unique fragment may be similar or identical in large part to a known molecule but may have a portion which is nonidentical to the known molecule; the known molecule and the unique fragment can be used to construct a molecule containing in large part the known molecule with the portion unique to the unique fragment added. Other chimeric molecules will be known to one of ordinary skill in the art and can be prepared using standard molecular biology techniques.

As will be recognized by those skilled in the art, the size of the unique fragment will depend upon its conservancy in the genetic code. Thus, some regions of cancer associated antigen sequences and complements thereof will require longer segments to be unique while others will require only short segments, typically between 12 and 32 nucleotides (e.g. 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31 and 32 or more bases long), up to the entire length of the disclosed sequence. As mentioned above, this disclosure intends to embrace each and every fragment of each sequence, beginning at the first nucleotide, the second nucleotide and so on, up to 8 nucleotides short of the end, and ending anywhere from nucleotide number 8, 9, 10 and so on for each sequence, up to the very last nucleotide (provided the sequence is unique as described above).

Virtually any segment of the polypeptide coding region of novel cancer associated antigen nucleic acids, or complements thereof, that is 25 or more nucleotides in length will be unique. Those skilled in the art are well versed in methods for selecting such sequences, typically on the basis of the ability of the unique fragment to selectively distinguish the sequence of interest from other sequences in the human genome of the fragment to those on known databases typically is all that is necessary, although *in vitro* confirmatory hybridization and sequencing analysis may be performed.

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Especially preferred include nucleic acids encoding a series of epitopes, known as "polytopes". The epitopes can be arranged in sequential or overlapping fashion (*see, e.g.*, Thomson et al., *Proc. Natl. Acad. Sci. USA* 92:5845-5849, 1995; Gilbert et al., *Nature Biotechnol.* 15:1280-1284, 1997), with or without the natural flanking sequences, and can be

5   separated by unrelated linker sequences if desired. The polytope is processed to generate individual epitopes which are recognized by the immune system for generation of immune responses.

Thus, for example, peptides derived from a polypeptide having an amino acid sequence encoded by one of the nucleic acid disclosed herein, and which are presented by

10   MHC molecules and recognized by CTL or T helper lymphocytes, can be combined with peptides from one or more other cancer associated antigens (e.g. by preparation of hybrid nucleic acids or polypeptides) to form "polytopes". The two or more peptides (or nucleic acids encoding the peptides) can be selected from those described herein, or they can include one or more peptides of previously known cancer associated antigens. Exemplary cancer

15   associated peptide antigens that can be administered to induce or enhance an immune response are derived from tumor associated genes and encoded proteins including MAGE-A1, MAGE-A2, MAGE-A3, MAGE-A4, MAGE-A5, MAGE-A6, MAGE-A7, MAGE-A8, MAGE-A9, MAGE-A10, MAGE-A11, MAGE-A12, GAGE-1, GAGE-2, GAGE-3, GAGE-4, GAGE-5, GAGE-6, GAGE-7, GAGE-8, GAGE-9, BAGE-1, RAGE-1, LB33/MUM-1,

20   PRAME, NAG, MAGE-B2, MAGE-B3, MAGE-B4, tyrosinase, brain glycogen phosphorylase, Melan-A, MAGE-C1, MAGE-C2, MAGE-C3, MAGE-C4, MAGE-C5, NY-ESO-1, LAGE-1, SSX-1, SSX-2 (HOM-MEL-40), SSX-4, SSX-5, SCP-1 and CT-7. See, for example, PCT application publication no. WO96/10577. Other examples will be known to one of ordinary skill in the art (for example, see Coulie, *Stem Cells* 13:393-403, 1995), and

25   can be used in the invention in a like manner as those disclosed herein. One of ordinary skill in the art can prepare polypeptides comprising one or more peptides and one or more of the foregoing cancer associated peptides, or nucleic acids encoding such polypeptides, according to standard procedures of molecular biology.

Thus polytopes are groups of two or more potentially immunogenic or immune

30   response stimulating peptides which can be joined together in various arrangements (e.g. concatenated, overlapping). The polytope (or nucleic acid encoding the polytope) can be administered in a standard immunization protocol, e.g. to animals, to test the effectiveness of

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the polytope in stimulating, enhancing and/or provoking an immune response.

The peptides can be joined together directly or via the use of flanking sequences to form polytopes, and the use of polytopes as vaccines is well known in the art (see, e.g., Thomson et al., *Proc. Acad. Natl. Acad. Sci USA* 92(13):5845-5849, 1995; Gilbert et al.,
5 *Nature Biotechnol.* 15(12):1280-1284, 1997; Thomson et al., *J. Immunol.* 157(2):822-826, 1996; Tam et al., *J. Exp. Med.* 171(1):299-306, 1990). For example, Tam showed that polytopes consisting of both MHC class I and class II binding epitopes successfully generated antibody and protective immunity in a mouse model. Tam also demonstrated that polytopes comprising "strings" of epitopes are processed to yield individual epitopes which are
10 presented by MHC molecules and recognized by CTLs. Thus polytopes containing various numbers and combinations of epitopes can be prepared and tested for recognition by CTLs and for efficacy in increasing an immune response.

It is known that tumors express a set of tumor antigens, of which only certain subsets may be expressed in the tumor of any given patient. Polytopes can be prepared which
15 correspond to the different combination of epitopes representing the subset of tumor rejection antigens expressed in a particular patient. Polytopes also can be prepared to reflect a broader spectrum of tumor rejection antigens known to be expressed by a tumor type. Polytopes can be introduced to a patient in need of such treatment as polypeptide structures, or via the use of nucleic acid delivery systems known in the art (see, e.g., Allsopp et al., *Eur. J. Immunol.*
20 26(8):1951-1959, 1996). Adenovirus, pox virus, Ty-virus like particles, adeno-associated virus, plasmids, bacteria, etc. can be used in such delivery. One can test the polytope delivery systems in mouse models to determine efficacy of the delivery system. The systems also can be tested in human clinical trials.

In instances in which a human HLA class I molecule presents tumor rejection antigens
25 derived from cancer associated nucleic acids, the expression vector may also include a nucleic acid sequence coding for the HLA molecule that presents any particular tumor rejection antigen derived from these nucleic acids and polypeptides. Alternatively, the nucleic acid sequence coding for such a HLA molecule can be contained within a separate expression vector. In a situation where the vector contains both coding sequences, the single vector can
30 be used to transfect a cell which does not normally express either one. Where the coding sequences for a cancer associated antigen precursor and the HLA molecule which presents it are contained on separate expression vectors, the expression vectors can be cotransfected.

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The cancer associated antigen precursor coding sequence may be used alone, when, e.g. the host cell already expresses a HLA molecule which presents a cancer associated antigen derived from precursor molecules. Of course, there is no limit on the particular host cell which can be used. As the vectors which contain the two coding sequences may be used in

5   any antigen-presenting cells if desired, and the gene for cancer associated antigen precursor can be used in host cells which do not express a HLA molecule which presents a cancer associated antigen. Further, cell-free transcription systems may be used in lieu of cells.

As mentioned above, the invention embraces antisense oligonucleotides that selectively bind to a nucleic acid molecule encoding a cancer associated antigen polypeptide,

10   to reduce the expression of cancer associated antigens. This is desirable in virtually any medical condition wherein a reduction of expression of cancer associated antigens is desirable, e.g., in the treatment of cancer. This is also useful for *in vitro* or *in vivo* testing of the effects of a reduction of expression of one or more cancer associated antigens.

As used herein, the term "antisense oligonucleotide" or "antisense" describes an

15   oligonucleotide that is an oligoribonucleotide, oligodeoxyribonucleotide, modified oligoribonucleotide, or modified oligodeoxyribonucleotide which hybridizes under physiological conditions to DNA comprising a particular gene or to an mRNA transcript of that gene and, thereby, inhibits the transcription of that gene and/or the translation of that mRNA. The antisense molecules are designed so as to interfere with transcription or

20   translation of a target gene upon hybridization with the target gene or transcript. Those skilled in the art will recognize that the exact length of the antisense oligonucleotide and its degree of complementarity with its target will depend upon the specific target selected, including the sequence of the target and the particular bases which comprise that sequence. It is preferred that the antisense oligonucleotide be constructed and arranged so as to bind selectively with

25   the target under physiological conditions, i.e., to hybridize substantially more to the target sequence than to any other sequence in the target cell under physiological conditions. Based upon the sequences of nucleic acids encoding breast, gastric or prostate cancer associated antigens, or upon allelic or homologous genomic and/or cDNA sequences, one of skill in the art can easily choose and synthesize any of a number of appropriate antisense molecules for

30   use in accordance with the present invention. For example, a "gene walk" comprising a series of oligonucleotides of 15-30 nucleotides spanning the length of a cancer associated antigen can be prepared, followed by testing for inhibition of cancer associated antigen expression.

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Optionally, gaps of 5-10 nucleotides can be left between the oligonucleotides to reduce the number of oligonucleotides synthesized and tested.

In order to be sufficiently selective and potent for inhibition, such antisense oligonucleotides should comprise at least 10 and, more preferably, at least 15 consecutive
5   bases which are complementary to the target, although in certain cases modified oligonucleotides as short as 7 bases in length have been used successfully as antisense oligonucleotides (Wagner et al., *Nature Biotechnol.* 14:840-844, 1996). Most preferably, the antisense oligonucleotides comprise a complementary sequence of 20-30 bases. Although oligonucleotides may be chosen which are antisense to any region of the gene or mRNA
10 transcripts, in preferred embodiments the antisense oligonucleotides correspond to N-terminal or 5' upstream sites such as translation initiation, transcription initiation or promoter sites. In addition, 3'-untranslated regions may be targeted. Targeting to mRNA splicing sites has also been used in the art but may be less preferred if alternative mRNA splicing occurs. In addition, the antisense is targeted, preferably, to sites in which mRNA secondary structure is
15 not expected (see, e.g., Sainio et al., *Cell Mol. Neurobiol.* 14(5):439-457, 1994) and at which proteins are not expected to bind. Finally, although the listed sequences are cDNA sequences, one of ordinary skill in the art may easily derive the genomic DNA corresponding to the cDNA of a cancer associated antigen. Thus, the present invention also provides for antisense oligonucleotides which are complementary to the genomic DNA corresponding to nucleic
20 acids encoding cancer associated antigens. Similarly, antisense to allelic or homologous cDNAs and genomic DNAs are enabled without undue experimentation.

In one set of embodiments, the antisense oligonucleotides of the invention may be composed of "natural" deoxyribonucleotides, ribonucleotides, or any combination thereof. That is, the 5' end of one native nucleotide and the 3' end of another native nucleotide may be
25 covalently linked, as in natural systems, via a phosphodiester internucleoside linkage. These oligonucleotides may be prepared by art recognized methods which may be carried out manually or by an automated synthesizer. They also may be produced recombinantly by vectors.

In preferred embodiments, however, the antisense oligonucleotides of the invention
30 also may include "modified" oligonucleotides. That is, the oligonucleotides may be modified in a number of ways which do not prevent them from hybridizing to their target but which enhance their stability or targeting or which otherwise enhance their therapeutic effectiveness.

The term "modified oligonucleotide" as used herein describes an oligonucleotide in which (1) at least two of its nucleotides are covalently linked via a synthetic internucleoside linkage (i.e., a linkage other than a phosphodiester linkage between the 5' end of one nucleotide and the 3' end of another nucleotide) and/or (2) a chemical group not normally associated with nucleic acids has been covalently attached to the oligonucleotide. Preferred synthetic internucleoside linkages are phosphorothioates, alkylphosphonates, phosphorodithioates, phosphate esters, alkylphosphonothioates, phosphoramidates, carbamates, carbonates, phosphate triesters, acetamidates, carboxymethyl esters and peptides.

The term "modified oligonucleotide" also encompasses oligonucleotides with a covalently modified base and/or sugar. For example, modified oligonucleotides include oligonucleotides having backbone sugars which are covalently attached to low molecular weight organic groups other than a hydroxyl group at the 3' position and other than a phosphate group at the 5' position. Thus modified oligonucleotides may include a 2'-O-alkylated ribose group. In addition, modified oligonucleotides may include sugars such as arabinose instead of ribose. The present invention, thus, contemplates pharmaceutical preparations containing modified antisense molecules that are complementary to and hybridizable with, under physiological conditions, nucleic acids encoding breast, gastric or prostate cancer associated antigen polypeptides, together with pharmaceutically acceptable carriers.

Antisense oligonucleotides may be administered as part of a pharmaceutical composition. Such a pharmaceutical composition may include the antisense oligonucleotides in combination with any standard physiologically and/or pharmaceutically acceptable carriers which are known in the art. The compositions should be sterile and contain a therapeutically effective amount of the antisense oligonucleotides in a unit of weight or volume suitable for administration to a patient. The term "pharmaceutically acceptable" means a non-toxic material that does not interfere with the effectiveness of the biological activity of the active ingredients. The term "physiologically acceptable" refers to a non-toxic material that is compatible with a biological system such as a cell, cell culture, tissue, or organism. The characteristics of the carrier will depend on the route of administration. Physiologically and pharmaceutically acceptable carriers include diluents, fillers, salts, buffers, stabilizers, solubilizers, and other materials which are well known in the art, as further described below.

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As used herein, a "vector" may be any of a number of nucleic acids into which a desired sequence may be inserted by restriction and ligation for transport between different genetic environments or for expression in a host cell. Vectors are typically composed of DNA although RNA vectors are also available. Vectors include, but are not limited to, plasmids,

5   phagemids and virus genomes. A cloning vector is one which is able to replicate autonomously or integrated in the genome in a host cell, and which is further characterized by one or more endonuclease restriction sites at which the vector may be cut in a determinable fashion and into which a desired DNA sequence may be ligated such that the new recombinant vector retains its ability to replicate in the host cell. In the case of plasmids,

10   replication of the desired sequence may occur many times as the plasmid increases in copy number within the host bacterium or just a single time per host before the host reproduces by mitosis. In the case of phage, replication may occur actively during a lytic phase or passively during a lysogenic phase. An expression vector is one into which a desired DNA sequence may be inserted by restriction and ligation such that it is operably joined to regulatory

15   sequences and may be expressed as an RNA transcript. Vectors may further contain one or more marker sequences suitable for use in the identification of cells which have or have not been transformed or transfected with the vector. Markers include, for example, genes encoding proteins which increase or decrease either resistance or sensitivity to antibiotics or other compounds, genes which encode enzymes whose activities are detectable by standard

20   assays known in the art (e.g., β-galactosidase, luciferase or alkaline phosphatase), and genes which visibly affect the phenotype of transformed or transfected cells, hosts, colonies or plaques (e.g., green fluorescent protein). Preferred vectors are those capable of autonomous replication and expression of the structural gene products present in the DNA segments to which they are operably joined.

25   As used herein, a coding sequence and regulatory sequences are said to be "operably" joined when they are covalently linked in such a way as to place the expression or transcription of the coding sequence under the influence or control of the regulatory sequences. If it is desired that the coding sequences be translated into a functional protein, two DNA sequences are said to be operably joined if induction of a promoter in the 5'

30   regulatory sequences results in the transcription of the coding sequence and if the nature of the linkage between the two DNA sequences does not (1) result in the introduction of a frame-shift mutation, (2) interfere with the ability of the promoter region to direct the transcription

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of the coding sequences, or (3) interfere with the ability of the corresponding RNA transcript to be translated into a protein. Thus, a promoter region would be operably joined to a coding sequence if the promoter region were capable of effecting transcription of that DNA sequence such that the resulting transcript might be translated into the desired protein or polypeptide.

5   The precise nature of the regulatory sequences needed for gene expression may vary between species or cell types, but shall in general include, as necessary, 5' non-transcribed and 5' non-translated sequences involved with the initiation of transcription and translation respectively, such as a TATA box, capping sequence, CAAT sequence, and the like. Especially, such 5' non-transcribed regulatory sequences will include a promoter region

10   which includes a promoter sequence for transcriptional control of the operably joined gene. Regulatory sequences may also include enhancer sequences or upstream activator sequences as desired. The vectors of the invention may optionally include 5' leader or signal sequences. The choice and design of an appropriate vector is within the ability and discretion of one of ordinary skill in the art.

15   Expression vectors containing all the necessary elements for expression are commercially available and known to those skilled in the art. See, e.g., Sambrook et al., *Molecular Cloning: A Laboratory Manual*, Second Edition, Cold Spring Harbor Laboratory Press, 1989. Cells are genetically engineered by the introduction into the cells of heterologous DNA (RNA) encoding a cancer associated antigen polypeptide or fragment or variant thereof.

20   That heterologous DNA (RNA) is placed under operable control of transcriptional elements to permit the expression of the heterologous DNA in the host cell.

Preferred systems for mRNA expression in mammalian cells are those such as pRc/CMV (available from Invitrogen, Carlsbad, CA) that contain a selectable marker such as a gene that confers G418 resistance (which facilitates the selection of stably transfected cell

25   lines) and the human cytomegalovirus (CMV) enhancer-promoter sequences. Additionally, suitable for expression in primate or canine cell lines is the pCEP4 vector (Invitrogen), which contains an Epstein Barr Virus (EBV) origin of replication, facilitating the maintenance of plasmid as a multicopy extrachromosomal element. Another expression vector is the pEF-BOS plasmid containing the promoter of polypeptide Elongation Factor 1α, which stimulates

30   efficiently transcription *in vitro*. The plasmid is described by Mishizuma and Nagata (*Nuc. Acids Res.* 18:5322, 1990), and its use in transfection experiments is disclosed by, for example, Demoulin (*Mol. Cell. Biol.* 16:4710-4716, 1996). Still another preferred expression

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vector is an adenovirus, described by Stratford-Perricaudet, which is defective for E1 and E3 proteins (*J. Clin. Invest.* 90:626-630, 1992). The use of the adenovirus as an Adeno.P1A recombinant for the expression of an antigen is disclosed by Warnier et al., in intradermal injection in mice for immunization against P1A (*Int. J. Cancer*, 67:303-310, 1996).

5   Additional vectors for delivery of nucleic acid are provided below.

The invention also embraces so-called expression kits, which allow the artisan to prepare a desired expression vector or vectors. Such expression kits include at least separate portions of a vector and one or more of the previously discussed cancer associated antigen nucleic acid molecules. Other components may be added, as desired, as long as the previously

10   mentioned nucleic acid molecules, which are required, are included. The invention also includes kits for amplification of a cancer associated antigen nucleic acid, including at least one pair of amplification primers which hybridize to a cancer associated antigen nucleic acid. The primers preferably are 12-32 nucleotides in length and are non-overlapping to prevent formation of "primer-dimers". One of the primers will hybridize to one strand of the cancer

15   associated antigen nucleic acid and the second primer will hybridize to the complementary strand of the cancer associated antigen nucleic acid, in an arrangement which permits amplification of the cancer associated antigen nucleic acid. Selection of appropriate primer pairs is standard in the art. For example, the selection can be made with assistance of a computer program designed for such a purpose, optionally followed by testing the primers for

20   amplification specificity and efficiency.

The invention also permits the construction of cancer associated antigen gene "knock-outs" and transgenic overexpression in cells and in animals, providing materials for studying certain aspects of cancer and immune system responses to cancer.

The invention also provides isolated polypeptides (including whole proteins and

25   partial proteins) encoded by the foregoing cancer associated antigen nucleic acids. Such polypeptides are useful, for example, alone or as fusion proteins to generate antibodies, as components of an immunoassay or diagnostic assay or as therapeutics. Cancer associated antigen polypeptides can be isolated from biological samples including tissue or cell homogenates, and can also be expressed recombinantly in a variety of prokaryotic and

30   eukaryotic expression systems by constructing an expression vector appropriate to the expression system, introducing the expression vector into the expression system, and isolating the recombinantly expressed protein. Short polypeptides, including antigenic peptides (such

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as are presented by MHC molecules on the surface of a cell for immune recognition) also can
be synthesized chemically using well-established methods of peptide synthesis.

A unique fragment of a cancer associated antigen polypeptide, in general, has the
features and characteristics of unique fragments as discussed above in connection with nucleic
5   acids. As will be recognized by those skilled in the art, the size of the unique fragment will
depend upon factors such as whether the fragment constitutes a portion of a conserved protein
domain. Thus, some regions of cancer associated antigens will require longer segments to be
unique while others will require only short segments, typically between 5 and 12 amino acids
(e.g. 5, 6, 7, 8, 9, 10, 11 or 12 or more amino acids including each integer up to the full
10   length).

Unique fragments of a polypeptide preferably are those fragments which retain a
distinct functional capability of the polypeptide. Functional capabilities which can be retained
in a unique fragment of a polypeptide include interaction with antibodies, interaction with
other polypeptides or fragments thereof, selective binding of nucleic acids or proteins, and
15   enzymatic activity. One important activity is the ability to act as a signature for identifying
the polypeptide. Another is the ability to complex with HLA and to provoke in a human an
immune response. Those skilled in the art are well versed in methods for selecting unique
amino acid sequences, typically on the basis of the ability of the unique fragment to
selectively distinguish the sequence of interest from non-family members. A comparison of
20   the sequence of the fragment to those on known databases typically is all that is necessary.

The invention embraces variants of the cancer associated antigen polypeptides
described above. As used herein, a "variant" of a cancer associated antigen polypeptide is a
polypeptide which contains one or more modifications to the primary amino acid sequence of
a cancer associated antigen polypeptide. Modifications which create a cancer associated
25   antigen variant can be made to a cancer associated antigen polypeptide 1) to reduce or
eliminate an activity of a cancer associated antigen polypeptide; 2) to enhance a property of a
cancer associated antigen polypeptide, such as protein stability in an expression system or the
stability of protein-protein binding; 3) to provide a novel activity or property to a cancer
associated antigen polypeptide, such as addition of an antigenic epitope or addition of a
30   detectable moiety; or 4) to provide equivalent or better binding to an HLA molecule.
Modifications to a cancer associated antigen polypeptide are typically made to the nucleic acid
which encodes the cancer associated antigen polypeptide, and can include deletions, point

mutations, truncations, amino acid substitutions and additions of amino acids or non-amino
acid moieties. Alternatively, modifications can be made directly to the polypeptide, such as
by cleavage, addition of a linker molecule, addition of a detectable moiety, such as biotin,
addition of a fatty acid, substitution of L-amino acids with D-amino acids, and the like.

5   Modifications also embrace fusion proteins comprising all or part of the cancer associated
antigen amino acid sequence. One of skill in the art will be familiar with methods for
predicting the effect on protein conformation of a change in protein sequence, and can thus
"design" a variant cancer associated antigen polypeptide according to known methods. One
example of such a method is described by Dahiyat and Mayo in *Science* 278:82-87, 1997,

10   whereby proteins can be designed *de novo*. The method can be applied to a known protein to
vary a only a portion of the polypeptide sequence. By applying the computational methods of
Dahiyat and Mayo, specific variants of a cancer associated antigen polypeptide can be
proposed and tested to determine whether the variant retains a desired conformation. Other
computational and computer modeling methods for designing polypeptide mimetics which

15   retain activity of the polypeptides described herein, as well as selection methods such as phage
display of peptide libraries are known in the art.

        In general, variants include cancer associated antigen polypeptides which are modified
specifically to alter a feature of the polypeptide unrelated to its desired physiological activity.
For example, cysteine residues can be substituted or deleted to prevent unwanted disulfide

20   linkages. Similarly, certain amino acids can be changed to enhance expression of a cancer
associated antigen polypeptide by eliminating proteolysis by proteases in an expression system
(e.g., dibasic amino acid residues in yeast expression systems in which KEX2 protease
activity is present).

        Mutations of a nucleic acid which encode a cancer associated antigen polypeptide

25   preferably preserve the amino acid reading frame of the coding sequence, and preferably do
not create regions in the nucleic acid which are likely to hybridize to form secondary
structures, such a hairpins or loops, which can be deleterious to expression of the variant
polypeptide.

        Mutations can be made by selecting an amino acid substitution, or by random

30   mutagenesis of a selected site in a nucleic acid which encodes the polypeptide. Variant
polypeptides are then expressed and tested for one or more activities to determine which
mutation provides a variant polypeptide with the desired properties. Further mutations can be

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made to variants (or to non-variant cancer associated antigen polypeptides) which are silent as to the amino acid sequence of the polypeptide, but which provide preferred codons for translation in a particular host. The preferred codons for translation of a nucleic acid in, e.g., *E. coli*, are well known to those of ordinary skill in the art. Still other mutations can be made

5   to the noncoding sequences of a cancer associated antigen gene or cDNA clone to enhance expression of the polypeptide. The activity of variants of cancer associated antigen polypeptides can be tested by cloning the gene encoding the variant cancer associated antigen polypeptide into a bacterial or mammalian expression vector, introducing the vector into an appropriate host cell, expressing the variant cancer associated antigen polypeptide, and testing

10   for a functional capability of the cancer associated antigen polypeptides as disclosed herein. For example, the variant cancer associated antigen polypeptide can be tested for reaction with autologous or allogeneic sera as disclosed in the Examples. Preparation of other variant polypeptides may favor testing of other activities, as will be known to one of ordinary skill in the art.

15   The skilled artisan will also realize that conservative amino acid substitutions may be made in cancer associated antigen polypeptides to provide functionally equivalent variants of the foregoing polypeptides, i.e, the variants retain the functional capabilities of the cancer associated antigen polypeptides. As used herein, a "conservative amino acid substitution" refers to an amino acid substitution which does not alter the relative charge or size

20   characteristics of the protein in which the amino acid substitution is made. Variants can be prepared according to methods for altering polypeptide sequence known to one of ordinary skill in the art such as are found in references which compile such methods, e.g. *Molecular Cloning: A Laboratory Manual*, J. Sambrook, et al., eds., Second Edition, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York, 1989, or *Current Protocols in Molecular*

25   *Biology*, F.M. Ausubel, et al., eds., John Wiley & Sons, Inc., New York. Exemplary functionally equivalent variants of the cancer associated antigen polypeptides include conservative amino acid substitutions of in the amino acid sequences of proteins disclosed herein. Conservative substitutions of amino acids include substitutions made amongst amino acids within the following groups: (a) M, I, L, V; (b) F, Y, W; (c) K, R, H; (d) A, G; (e) S, T;

30   (f) Q, N; and (g) E, D.

       For example, upon determining that a peptide derived from a cancer associated antigen polypeptide is presented by an MHC molecule and recognized by CTLs, one can make

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conservative amino acid substitutions to the amino acid sequence of the peptide, particularly at residues which are thought not to be direct contact points with the MHC molecule. For example, methods for identifying functional variants of HLA class II binding peptides are provided in a published PCT application of Strominger and Wucherpfennig

5   (PCT/US96/03182). Peptides bearing one or more amino acid substitutions also can be tested for concordance with known HLA/MHC motifs prior to synthesis using, e.g. the computer program described by D'Amaro and Drijfhout (D'Amaro et al., *Human Immunol.* 43:13-18, 1995; Drijfhout et al., *Human Immunol.* 43:1-12, 1995). The substituted peptides can then be tested for binding to the MHC molecule and recognition by CTLs when bound to MHC.

10 These variants can be tested for improved stability and are useful, *inter alia*, in vaccine compositions.

Conservative amino-acid substitutions in the amino acid sequence of cancer associated antigen polypeptides to produce functionally equivalent variants of cancer associated antigen polypeptides typically are made by alteration of a nucleic acid encoding a cancer associated

15 antigen polypeptide. Such substitutions can be made by a variety of methods known to one of ordinary skill in the art. For example, amino acid substitutions may be made by PCR-directed mutation, site-directed mutagenesis according to the method of Kunkel (Kunkel, *Proc. Nat. Acad. Sci. U.S.A.* 82: 488-492, 1985), or by chemical synthesis of a gene encoding a cancer associated antigen polypeptide. Where amino acid substitutions are made to a small unique

20 fragment of a cancer associated antigen polypeptide, such as an antigenic epitope recognized by autologous or allogeneic sera or cytolytic T lymphocytes, the substitutions can be made by directly synthesizing the peptide. The activity of functionally equivalent fragments of cancer associated antigen polypeptides can be tested by cloning the gene encoding the altered cancer associated antigen polypeptide into a bacterial or mammalian expression vector, introducing

25 the vector into an appropriate host cell, expressing the altered cancer associated antigen polypeptide, and testing for a functional capability of the cancer associated antigen polypeptides as disclosed herein. Peptides which are chemically synthesized can be tested directly for function, e.g., for binding to antisera recognizing associated antigens.

The invention as described herein has a number of uses, some of which are described

30 elsewhere herein. First, the invention permits production and/or isolation of the cancer associated antigen protein molecules. A variety of methodologies well-known to the skilled practitioner can be utilized to obtain isolated cancer associated antigen molecules. The

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polypeptide may be purified from cells which naturally produce the polypeptide by chromatographic means or immunological recognition. Alternatively, an expression vector may be introduced into cells to cause production of the polypeptide. In another method, mRNA transcripts may be microinjected or otherwise introduced into cells to cause

5   production of the encoded polypeptide. Translation of mRNA in cell-free extracts such as the reticulocyte lysate system also may be used to produce polypeptide. Those skilled in the art also can readily follow known methods for isolating cancer associated antigen polypeptides. These include, but are not limited to, immunochromatography, HPLC, size-exclusion chromatography, ion-exchange chromatography and immune-affinity chromatography.

10   The isolation and identification of cancer associated antigen genes also makes it possible for the artisan to diagnose a disorder characterized by expression of cancer associated antigens. These methods involve determining expression of one or more cancer associated antigen nucleic acids, and/or encoded cancer associated antigen polypeptides and/or peptides derived therefrom. In the former situation, such determinations can be carried out via any

15   standard nucleic acid determination assay, including the polymerase chain reaction, or assaying with labeled hybridization probes. In the latter situation, such determinations can be carried out by screening patient antisera for recognition of the polypeptide.

       The invention also makes it possible isolate proteins which bind to cancer associated antigens as disclosed herein, including antibodies and cellular binding partners of the cancer

20   associated antigens. Additional uses are described further herein.

       The invention also provides, in certain embodiments, "dominant negative" polypeptides derived from cancer associated antigen polypeptides. A dominant negative polypeptide is an inactive variant of a protein, which, by interacting with the cellular machinery, displaces an active protein from its interaction with the cellular machinery or

25   competes with the active protein, thereby reducing the effect of the active protein. For example, a dominant negative receptor which binds a ligand but does not transmit a signal in response to binding of the ligand can reduce the biological effect of expression of the ligand. Likewise, a dominant negative catalytically-inactive kinase which interacts normally with target proteins but does not phosphorylate the target proteins can reduce phosphorylation of

30   the target proteins in response to a cellular signal. Similarly, a dominant negative transcription factor which binds to a promoter site in the control region of a gene but does not increase gene transcription can reduce the effect of a normal transcription factor by occupying

promoter binding sites without increasing transcription.

The end result of the expression of a dominant negative polypeptide in a cell is a reduction in function of active proteins. One of ordinary skill in the art can assess the potential for a dominant negative variant of a protein, and using standard mutagenesis techniques to create one or more dominant negative variant polypeptides. For example, given the teachings contained herein of breast, gastric and prostate cancer associated antigens, especially those which are similar to known proteins which have known activities, one of ordinary skill in the art can modify the sequence of the cancer associated antigens by site-specific mutagenesis, scanning mutagenesis, partial gene deletion or truncation, and the like. See, e.g., U.S. Patent No. 5,580,723 and Sambrook et al., *Molecular Cloning: A Laboratory Manual*, Second Edition, Cold Spring Harbor Laboratory Press, 1989. The skilled artisan then can test the population of mutagenized polypeptides for diminution in a selected and/or for retention of such an activity. Other similar methods for creating and testing dominant negative variants of a protein will be apparent to one of ordinary skill in the art.

The invention also involves agents such as polypeptides which bind to cancer associated antigen polypeptides. Such binding agents can be used, for example, in screening assays to detect the presence or absence of cancer associated antigen polypeptides and complexes of cancer associated antigen polypeptides and their binding partners and in purification protocols to isolated cancer associated antigen polypeptides and complexes of cancer associated antigen polypeptides and their binding partners. Such agents also can be used to inhibit the native activity of the cancer associated antigen polypeptides, for example, by binding to such polypeptides.

The invention, therefore, embraces peptide binding agents which, for example, can be antibodies or fragments of antibodies having the ability to selectively bind to cancer associated antigen polypeptides. Antibodies include polyclonal and monoclonal antibodies, prepared according to conventional methodology.

Significantly, as is well-known in the art, only a small portion of an antibody molecule, the paratope, is involved in the binding of the antibody to its epitope (see, in general, Clark, W.R. (1986) The Experimental Foundations of Modern Immunology Wiley & Sons, Inc., New York; Roitt, I. (1991) Essential Immunology, 7th Ed., Blackwell Scientific Publications, Oxford). The pFc' and Fc regions, for example, are effectors of the complement cascade but are not involved in antigen binding. An antibody from which the pFc' region has

been enzymatically cleaved, or which has been produced without the pFc' region, designated
an F(ab')₂ fragment, retains both of the antigen binding sites of an intact antibody. Similarly,
an antibody from which the Fc region has been enzymatically cleaved, or which has been
produced without the Fc region, designated an Fab fragment, retains one of the antigen

5   binding sites of an intact antibody molecule. Proceeding further, Fab fragments consist of a
covalently bound antibody light chain and a portion of the antibody heavy chain denoted Fd.
The Fd fragments are the major determinant of antibody specificity (a single Fd fragment may
be associated with up to ten different light chains without altering antibody specificity) and Fd
fragments retain epitope-binding ability in isolation.

10   Within the antigen-binding portion of an antibody, as is well-known in the art, there
are complementarity determining regions (CDRs), which directly interact with the epitope of
the antigen, and framework regions (FRs), which maintain the tertiary structure of the
paratope (see, in general, Clark, 1986; Roitt, 1991). In both the heavy chain Fd fragment and
the light chain of IgG immunoglobulins, there are four framework regions (FR1 through FR4)

15   separated respectively by three complementarity determining regions (CDR1 through CDR3).
The CDRs, and in particular the CDR3 regions, and more particularly the heavy chain CDR3,
are largely responsible for antibody specificity.

              It is now well-established in the art that the non-CDR regions of a mammalian
antibody may be replaced with similar regions of conspecific or heterospecific antibodies

20   while retaining the epitopic specificity of the original antibody. This is most clearly
manifested in the development and use of "humanized" antibodies in which non-human CDRs
are covalently joined to human FR and/or Fc/pFc' regions to produce a functional antibody.
See, e.g., U.S. patents 4,816,567, 5,225,539, 5,585,089, 5,693,762 and 5,859,205.

              Thus, for example, PCT International Publication Number WO 92/04381 teaches the

25   production and use of humanized murine RSV antibodies in which at least a portion of the
murine FR regions have been replaced by FR regions of human origin. Such antibodies,
including fragments of intact antibodies with antigen-binding ability, are often referred to as
"chimeric" antibodies.

              Thus, as will be apparent to one of ordinary skill in the art, the present invention also

30   provides for F(ab')₂, Fab, Fv and Fd fragments; chimeric antibodies in which the Fc and/or FR
and/or CDR1 and/or CDR2 and/or light chain CDR3 regions have been replaced by
homologous human or non-human sequences; chimeric F(ab')₂ fragment antibodies in which

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the FR and/or CDR1 and/or CDR2 and/or light chain CDR3 regions have been replaced by homologous human or non-human sequences; chimeric Fab fragment antibodies in which the FR and/or CDR1 and/or CDR2 and/or light chain CDR3 regions have been replaced by homologous human or non-human sequences; and chimeric Fd fragment antibodies in which

5   the FR and/or CDR1 and/or CDR2 regions have been replaced by homologous human or non-human sequences. The present invention also includes so-called single chain antibodies.

Thus, the invention involves polypeptides of numerous size and type that bind specifically to cancer associated antigen polypeptides, and complexes of both cancer associated antigen polypeptides and their binding partners. These polypeptides may be

10   derived also from sources other than antibody technology. For example, such polypeptide binding agents can be provided by degenerate peptide libraries which can be readily prepared in solution, in immobilized form or as phage display libraries. Combinatorial libraries also can be synthesized of peptides containing one or more amino acids. Libraries further can be synthesized of peptoids and non-peptide synthetic moieties.

15   Phage display can be particularly effective in identifying binding peptides useful according to the invention. Briefly, one prepares a phage library (using e.g. m13, fd, or lambda phage), displaying inserts from 4 to about 80 amino acid residues using conventional procedures. The inserts may represent, for example, a completely degenerate or biased array. One then can select phage-bearing inserts which bind to the cancer associated antigen

20   polypeptide. This process can be repeated through several cycles of reselection of phage that bind to the cancer associated antigen polypeptide. Repeated rounds lead to enrichment of phage bearing particular sequences. DNA sequence analysis can be conducted to identify the sequences of the expressed polypeptides. The minimal linear portion of the sequence that binds to the cancer associated antigen polypeptide can be determined. One can repeat the

25   procedure using a biased library containing inserts containing part or all of the minimal linear portion plus one or more additional degenerate residues upstream or downstream thereof. Yeast two-hybrid screening methods also may be used to identify polypeptides that bind to the cancer associated antigen polypeptides. Thus, the cancer associated antigen polypeptides of the invention, or a fragment thereof, can be used to screen peptide libraries, including phage

30   display libraries, to identify and select peptide binding partners of the cancer associated antigen polypeptides of the invention. Such molecules can be used, as described, for screening assays, for purification protocols, for interfering directly with the functioning of

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cancer associated antigen and for other purposes that will be apparent to those of ordinary
skill in the art.

As detailed herein, the foregoing antibodies and other binding molecules may be used
for example to identify tissues expressing protein or to purify protein. Antibodies also may be
5   coupled to specific diagnostic labeling agents for imaging of cells and tissues that express
cancer associated antigens or to therapeutically useful agents according to standard coupling
procedures. Diagnostic agents include, but are not limited to, barium sulfate, iocetamic acid,
iopanoic acid, ipodate calcium, diatrizoate sodium, diatrizoate meglumine, metrizamide,
tyropanoate sodium and radiodiagnostics including positron emitters such as fluorine-18 and
10   carbon-11, gamma emitters such as iodine-123, technetium-99m, iodine-131 and indium-111,
and nuclides for nuclear magnetic resonance such as fluorine and gadolinium. Other
diagnostic agents useful in the invention will be apparent to one of ordinary skill in the art.
As used herein, "therapeutically useful agents" include any therapeutic molecule which
desirably is targeted selectively to a cell expressing one of the cancer antigens disclosed
15   herein, including antineoplastic agents, radioiodinated compounds, toxins, other cytostatic or
cytolytic drugs, and so forth. Antineoplastic therapeutics are well known and include:
aminoglutethimide, azathioprine, bleomycin sulfate, busulfan, carmustine, chlorambucil,
cisplatin, cyclophosphamide, cyclosporine, cytarabidine, dacarbazine, dactinomycin,
daunorubicin, doxorubicin, taxol, etoposide, fluorouracil, interferon-α, lomustine,
20   mercaptopurine, methotrexate, mitotane, procarbazine HCl, thioguanine, vinblastine sulfate
and vincristine sulfate. Additional antineoplastic agents include those disclosed in Chapter
52, Antineoplastic Agents (Paul Calabresi and Bruce A. Chabner), and the introduction
thereto, 1202-1263, of Goodman and Gilman's "The Pharmacological Basis of Therapeutics",
Eighth Edition, 1990, McGraw-Hill, Inc. (Health Professions Division). Toxins can be
25   proteins such as, for example, pokeweed anti-viral protein, cholera toxin, pertussis toxin,
ricin, gelonin, abrin, diphtheria exotoxin, or *Pseudomonas* exotoxin. Toxin moieties can also
be high energy-emitting radionuclides such as cobalt-60.

In the foregoing methods and compositions, antibodies prepared according to the
invention also preferably are specific for the cancer associated antigen/MHC complexes
30   described herein.

When "disorder" is used herein, it refers to any pathological condition where the
cancer associated antigens are expressed. An example of such a disorder is cancer, including

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breast, gastric and prostate cancer as particular examples.

Samples of tissue and/or cells for use in the various methods described herein can be obtained through standard methods such as tissue biopsy, including punch biopsy and cell scraping, and collection of blood or other bodily fluids by aspiration or other methods.

5   In certain embodiments of the invention, an immunoreactive cell sample is removed from a subject. By "immunoreactive cell" is meant a cell which can mature into an immune cell (such as a B cell, a helper T cell, or a cytolytic T cell) upon appropriate stimulation. Thus immunoreactive cells include $CD34^+$ hematopoietic stem cells, immature T cells and immature B cells. When it is desired to produce cytolytic T cells which recognize a cancer associated antigen, the immunoreactive cell is contacted with a cell which expresses a cancer
10   associated antigen under conditions favoring production, differentiation and/or selection of cytolytic T cells; the differentiation of the T cell precursor into a cytolytic T cell upon exposure to antigen is similar to clonal selection of the immune system.

Some therapeutic approaches based upon the disclosure are premised on a response by a subject's immune system, leading to lysis of antigen presenting cells, such as breast, gastric
15   or prostate cancer cells which present one or more cancer associated antigens. One such approach is the administration of autologous CTLs specific to a cancer associated antigen/MHC complex to a subject with abnormal cells of the phenotype at issue. It is within the ability of one of ordinary skill in the art to develop such CTLs *in vitro*. An example of a method for T cell differentiation is presented in International Application number
20   PCT/US96/05607. Generally, a sample of cells taken from a subject, such as blood cells, are contacted with a cell presenting the complex and capable of provoking CTLs to proliferate. The target cell can be a transfectant, such as a COS cell. These transfectants present the desired complex at their surface and, when combined with a CTL of interest, stimulate its proliferation. COS cells are widely available, as are other suitable host cells. Specific
25   production of CTL clones is well known in the art. The clonally expanded autologous CTLs then are administered to the subject.

CTL proliferation can be increased by increasing the level of tryptophan in T cell cultures, by inhibiting enzymes which catabolize tryptophan, such as indoleamine 2,3-
30   dioxygenase (IDO), or by adding tryptophan to the culture. Proliferation of T cells is enhanced by increasing the rate of proliferation and/or extending the number of divisions of the T cells in culture. In addition, increasing tryptophan in T cell cultures also enhances the

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lytic activity of the T cells grown in culture.

Another method for selecting antigen-specific CTL clones has recently been described (Altman et al., *Science* 274:94-96, 1996; Dunbar et al., *Curr. Biol.* 8:413-416, 1998), in which fluorogenic tetramers of MHC class I molecule/peptide complexes are used to detect specific

5   CTL clones. Briefly, soluble MHC class I molecules are folded *in vitro* in the presence of β_2-microglobulin and a peptide antigen which binds the class I molecule. After purification, the MHC/peptide complex is purified and labeled with biotin. Tetramers are formed by mixing the biotinylated peptide-MHC complex with labeled avidin (e.g. phycoerythrin) at a molar ratio or 4:1. Tetramers are then contacted with a source of CTLs such as peripheral blood or

10   lymph node. The tetramers bind CTLs which recognize the peptide antigen/MHC class I complex. Cells bound by the tetramers can be sorted by fluorescence activated cell sorting to isolate the reactive CTLs. The isolated CTLs then can be expanded *in vitro* for use as described herein.

To detail a therapeutic methodology, referred to as adoptive transfer (Greenberg, *J.*

15   *Immunol.* 136(5): 1917, 1986; Riddel et al., *Science* 257: 238, 1992; Lynch et al, *Eur. J. Immunol.* 21: 1403-1410,1991; Kast et al., *Cell* 59: 603-614, 1989), cells presenting the desired complex (e.g., dendritic cells) are combined with CTLs leading to proliferation of the CTLs specific thereto. The proliferated CTLs are then administered to a subject with a cellular abnormality which is characterized by certain of the abnormal cells presenting the

20   particular complex. The CTLs then lyse the abnormal cells, thereby achieving the desired therapeutic goal.

The foregoing therapy assumes that at least some of the subject's abnormal cells present the relevant HLA/cancer associated antigen complex. This can be determined very easily, as the art is very familiar with methods for identifying cells which present a particular

25   HLA molecule, as well as how to identify cells expressing DNA of the pertinent sequences, in this case a cancer associated antigen sequence. Once cells presenting the relevant complex are identified via the foregoing screening methodology, they can be combined with a sample from a patient, where the sample contains CTLs. If the complex presenting cells are lysed by the mixed CTL sample, then it can be assumed that a cancer associated antigen is being presented,

30   and the subject is an appropriate candidate for the therapeutic approaches set forth *supra*.

Adoptive transfer is not the only form of therapy that is available in accordance with the invention. CTLs can also be provoked *in vivo*, using a number of approaches. One

approach is the use of non-proliferative cells expressing the complex. The cells used in this approach may be those that normally express the complex, such as irradiated tumor cells or cells transfected with one or both of the genes necessary for presentation of the complex (i.e. the antigenic peptide and the presenting HLA molecule). Chen et al. (*Proc. Natl. Acad. Sci.*

5   *USA* 88: 110-114,1991) exemplifies this approach, showing the use of transfected cells expressing HPV-E7 peptides in a therapeutic regime. Various cell types may be used. Similarly, vectors carrying one or both of the genes of interest may be used. Viral or bacterial vectors are especially preferred. For example, nucleic acids which encode a cancer associated antigen polypeptide or peptide may be operably linked to promoter and enhancer sequences

10   which direct expression of the cancer associated antigen polypeptide or peptide in certain tissues or cell types. The nucleic acid may be incorporated into an expression vector. Expression vectors may be unmodified extrachromosomal nucleic acids, plasmids or viral genomes constructed or modified to enable insertion of exogenous nucleic acids, such as those encoding cancer associated antigens, as described elsewhere herein. Nucleic acids encoding

15   one or more cancer associated antigens also may be inserted into a retroviral genome, thereby facilitating integration of the nucleic acid into the genome of the target tissue or cell type. In these systems, the gene of interest is carried by a microorganism, e.g., a <u>Vaccinia</u> virus, pox virus, herpes simplex virus, retrovirus or adenovirus, and the materials de facto "infect" host cells. The cells which result present the complex of interest, and are recognized by

20   autologous CTLs, which then proliferate.

        A similar effect can be achieved by combining the cancer associated antigen or a stimulatory fragment thereof with an adjuvant to facilitate incorporation into antigen presenting cells *in vivo*. The cancer associated antigen polypeptide is processed to yield the peptide partner of the HLA molecule while a cancer associated antigen peptide may be

25   presented without the need for further processing. Generally, subjects can receive an intradermal injection of an effective amount of the cancer associated antigen. Initial doses can be followed by booster doses, following immunization protocols standard in the art. Preferred cancer associated antigens include those found to react with allogeneic cancer antisera, shown in the examples below.

30   The invention involves the use of various materials disclosed herein to "immunize" subjects or as "vaccines". As used herein, "immunization" or "vaccination" means increasing or activating an immune response against an antigen. It does not require elimination or

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eradication of a condition but rather contemplates the clinically favorable enhancement of an immune response toward an antigen. Generally accepted animal models can be used for testing of immunization against cancer using a cancer associated antigen nucleic acid. For example, human cancer cells can be introduced into a mouse to create a tumor, and one or

5 more cancer associated antigen nucleic acids can be delivered by the methods described herein. The effect on the cancer cells (e.g., reduction of tumor size) can be assessed as a measure of the effectiveness of the cancer associated antigen nucleic acid immunization. Of course, testing of the foregoing animal model using more conventional methods for immunization can include the administration of one or more cancer associated antigen

10 polypeptides or peptides derived therefrom, optionally combined with one or more adjuvants and/or cytokines to boost the immune response. Methods for immunization, including formulation of a vaccine composition and selection of doses, route of administration and the schedule of administration (e.g. primary and one or more booster doses), are well known in the art. The tests also can be performed in humans, where the end point is to test for the

15 presence of enhanced levels of circulating CTLs against cells bearing the antigen, to test for levels of circulating antibodies against the antigen, to test for the presence of cells expressing the antigen and so forth.

As part of the immunization compositions, one or more cancer associated antigens or stimulatory fragments thereof are administered with one or more adjuvants to induce an

20 immune response or to increase an immune response. An adjuvant is a substance incorporated into or administered with antigen which potentiates the immune response. Adjuvants may enhance the immunological response by providing a reservoir of antigen (extracellularly or within macrophages), activating macrophages and stimulating specific sets of lymphocytes. Adjuvants of many kinds are well known in the art. Specific examples of adjuvants include

25 monophosphoryl lipid A (MPL, SmithKline Beecham), a congener obtained after purification and acid hydrolysis of *Salmonella minnesota* Re 595 lipopolysaccharide; saponins including QS21 (SmithKline Beecham), a pure QA-21 saponin purified from *Quillja saponaria* extract; DQS21, described in PCT application WO96/33739 (SmithKline Beecham); QS-7, QS-17, QS-18, and QS-L1 (So et al., *Mol. Cells* 7:178-186, 1997); incomplete Freund's adjuvant;

30 complete Freund's adjuvant; montanide; alum; CpG oligonucleotides (see e.g. Kreig et al., *Nature* 374:546-9, 1995); and various water-in-oil emulsions prepared from biodegradable oils such as squalene and/or tocopherol. Preferably, the peptides are administered mixed with

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a combination of DQS21/MPL. The ratio of DQS21 to MPL typically will be about 1:10 to 10:1, preferably about 1:5 to 5:1 and more preferably about 1:1. Typically for human administration, DQS21 and MPL will be present in a vaccine formulation in the range of about 1 µg to about 100 µg. Other adjuvants are known in the art and can be used in the invention (see, e.g. Goding, *Monoclonal Antibodies: Principles and Practice*, 2nd Ed., 1986). Methods for the preparation of mixtures or emulsions of peptide and adjuvant are well known to those of skill in the art of vaccination.

Other agents which stimulate the immune response of the subject can also be administered to the subject. For example, other cytokines are also useful in vaccination protocols as a result of their lymphocyte regulatory properties. Many other cytokines useful for such purposes will be known to one of ordinary skill in the art, including interleukin-12 (IL-12) which has been shown to enhance the protective effects of vaccines (see, e.g., *Science* 268: 1432-1434, 1995), GM-CSF and IL-18. Thus cytokines can be administered in conjunction with antigens and adjuvants to increase the immune response to the antigens.

There are a number of immune response potentiating compounds that can be used in vaccination protocols. These include costimulatory molecules provided in either protein or nucleic acid form. Such costimulatory molecules include the B7-1 and B7-2 (CD80 and CD86 respectively) molecules which are expressed on dendritic cells (DC) and interact with the CD28 molecule expressed on the T cell. This interaction provides costimulation (signal 2) to an antigen/MHC/TCR stimulated (signal 1) T cell, increasing T cell proliferation and effector function. B7 also interacts with CTLA4 (CD152) on T cells and studies involving CTLA4 and B7 ligands indicate that the B7-CTLA4 interaction can enhance antitumor immunity and CTL proliferation (Zheng P., et al. *Proc. Natl. Acad. Sci. USA* 95 (11):6284-6289 (1998)).

B7 typically is not expressed on tumor cells so they are not efficient antigen presenting cells (APCs) for T cells. Induction of B7 expression would enable the tumor cells to stimulate more efficiently CTL proliferation and effector function. A combination of B7/IL-6/IL-12 costimulation has been shown to induce IFN-gamma and a Th1 cytokine profile in the T cell population leading to further enhanced T cell activity (Gajewski et al., *J. Immunol*, 154:5637-5648 (1995)). Tumor cell transfection with B7 has ben discussed in relation to *in vitro* CTL expansion for adoptive transfer immunotherapy by Wang et al., (*J. Immunol.*, 19:1-8 (1986)). Other delivery mechanisms for the B7 molecule would include nucleic acid (naked DNA) immunization (Kim J., et al. *Nat Biotechnol.*, 15:7:641-646 (1997)) and recombinant viruses

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such as adeno and pox (Wendtner et al., *Gene Ther.*, 4:7:726-735 (1997)). These systems are
all amenable to the construction and use of expression cassettes for the coexpression of B7
with other molecules of choice such as the antigens or fragment(s) of antigens discussed
herein (including polytopes) or cytokines. These delivery systems can be used for induction

5   of the appropriate molecules *in vitro* and for *in vivo* vaccination situations. The use of anti-
CD28 antibodies to directly stimulate T cells *in vitro* and *in vivo* could also be considered.
Similarly, the inducible co-stimulatory molecule ICOS which induces T cell responses to
foreign antigen could be modulated, for example, by use of anti-ICOS antibodies (Hutloff et
al., *Nature* 397:263-266, 1999).

10   Lymphocyte function associated antigen-3 (LFA-3) is expressed on APCs and some
tumor cells and interacts with CD2 expressed on T cells. This interaction induces T cell IL-2
and IFN-gamma production and can thus complement but not substitute, the B7/CD28
costimulatory interaction (Parra et al., *J. Immunol.*, 158:637-642 (1997), Fenton et al., *J.
Immunother.*, 21:2:95-108 (1998)).

15   Lymphocyte function associated antigen-1 (LFA-1) is expressed on leukocytes and
interacts with ICAM-1 expressed on APCs and some tumor cells. This interaction induces T
cell IL-2 and IFN-gamma production and can thus complement but not substitute, the
B7/CD28 costimulatory interaction (Fenton et al., *J. Immunother.*, 21:2:95-108 (1998)). LFA-
1 is thus a further example of a costimulatory molecule that could be provided in a

20   vaccination protocol in the various ways discussed above for B7.

            Complete CTL activation and effector function requires Th cell help through the
interaction between the Th cell CD40L (CD40 ligand) molecule and the CD40 molecule
expressed by DCs (Ridge et al., *Nature*, 393:474 (1998), Bennett et al., *Nature*, 393:478
(1998), Schoenberger et al., *Nature*, 393:480 (1998)). This mechanism of this costimulatory

25   signal is likely to involve upregulation of B7 and associated IL-6/IL-12 production by the DC
(APC). The CD40-CD40L interaction thus complements the signal 1 (antigen/MHC-TCR)
and signal 2 (B7-CD28) interactions.

            The use of anti-CD40 antibodies to stimulate DC cells directly, would be expected to
enhance a response to tumor antigens which are normally encountered outside of a

30   inflammatory context or are presented by non-professional APCs (tumor cells). In these
situations Th help and B7 costimulation signals are not provided. This mechanism might be
used in the context of antigen pulsed DC based therapies or in situations where Th epitopes

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have not been defined within known cancer antigen precursors.

A cancer associated antigen polypeptide, or a fragment thereof, also can be used to isolate their native binding partners. Isolation of such binding partners may be performed according to well-known methods. For example, isolated cancer associated antigen
5 polypeptides can be attached to a substrate (e.g., chromatographic media, such as polystyrene beads, or a filter), and then a solution suspected of containing the binding partner may be applied to the substrate. If a binding partner which can interact with cancer associated antigen polypeptides is present in the solution, then it will bind to the substrate-bound cancer associated antigen polypeptide. The binding partner then may be isolated.

10   It will also be recognized that the invention embraces the use of the cancer associated antigen cDNA sequences in expression vectors, as well as to transfect host cells and cell lines, be these prokaryotic (e.g., *E. coli*), or eukaryotic (e.g., dendritic cells, B cells, CHO cells, COS cells, yeast expression systems and recombinant baculovirus expression in insect cells). Especially useful are mammalian cells such as human, mouse, hamster, pig, goat, primate, etc.
15 They may be of a wide variety of tissue types, and include primary cells and cell lines. Specific examples include keratinocytes, peripheral blood leukocytes, bone marrow stem cells and embryonic stem cells. The expression vectors require that the pertinent sequence, i.e., those nucleic acids described *supra*, be operably linked to a promoter.

The invention also contemplates delivery of nucleic acids, polypeptides or peptides for
20 vaccination. Delivery of polypeptides and peptides can be accomplished according to standard vaccination protocols which are well known in the art. In another embodiment, the delivery of nucleic acid is accomplished by *ex vivo* methods, i.e. by removing a cell from a subject, genetically engineering the cell to include a cancer associated antigen, and reintroducing the engineered cell into the subject. One example of such a procedure is
25 outlined in U.S. Patent 5,399,346 and in exhibits submitted in the file history of that patent, all of which are publicly available documents. In general, it involves introduction *in vitro* of a functional copy of a gene into a cell(s) of a subject, and returning the genetically engineered cell(s) to the subject. The functional copy of the gene is under operable control of regulatory elements which permit expression of the gene in the genetically engineered cell(s). Numerous
30 transfection and transduction techniques as well as appropriate expression vectors are well known to those of ordinary skill in the art, some of which are described in PCT application WO95/00654. *In vivo* nucleic acid delivery using vectors such as viruses and targeted

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liposomes also is contemplated according to the invention.

In preferred embodiments, a virus vector for delivering a nucleic acid encoding a cancer associated antigen is selected from the group consisting of adenoviruses, adeno-associated viruses, poxviruses including vaccinia viruses and attenuated poxviruses, Semliki Forest virus, Venezuelan equine encephalitis virus, retroviruses, Sindbis virus, and Ty virus-like particle. Examples of viruses and virus-like particles which have been used to deliver exogenous nucleic acids include: replication-defective adenoviruses (e.g., Xiang et al., *Virology* 219:220-227, 1996; Eloit et al., *J. Virol.* 7:5375-5381, 1997; Chengalvala et al., *Vaccine* 15:335-339, 1997), a modified retrovirus (Townsend et al., *J. Virol.* 71:3365-3374, 1997), a nonreplicating retrovirus (Irwin et al., *J. Virol.* 68:5036-5044, 1994), a replication defective Semliki Forest virus (Zhao et al., *Proc. Natl. Acad. Sci. USA* 92:3009-3013, 1995), canarypox virus and highly attenuated vaccinia virus derivative (Paoletti, *Proc. Natl. Acad. Sci. USA* 93:11349-11353, 1996), non-replicative vaccinia virus (Moss, *Proc. Natl. Acad. Sci. USA* 93:11341-11348, 1996), replicative vaccinia virus (Moss, *Dev. Biol. Stand.* 82:55-63, 1994), Venzuelan equine encephalitis virus (Davis et al., *J. Virol.* 70:3781-3787, 1996), Sindbis virus (Pugachev et al., *Virology* 212:587-594, 1995), and Ty virus-like particle (Allsopp et al., *Eur. J. Immunol* 26:1951-1959, 1996). In preferred embodiments, the virus vector is an adenovirus.

Another preferred virus for certain applications is the adeno-associated virus, a double-stranded DNA virus. The adeno-associated virus is capable of infecting a wide range of cell types and species and can be engineered to be replication-deficient. It further has advantages, such as heat and lipid solvent stability, high transduction frequencies in cells of diverse lineages, including hematopoietic cells, and lack of superinfection inhibition thus allowing multiple series of transductions. The adeno-associated virus can integrate into human cellular DNA in a site-specific manner, thereby minimizing the possibility of insertional mutagenesis and variability of inserted gene expression. In addition, wild-type adeno-associated virus infections have been followed in tissue culture for greater than 100 passages in the absence of selective pressure, implying that the adeno-associated virus genomic integration is a relatively stable event. The adeno-associated virus can also function in an extrachromosomal fashion.

In general, other preferred viral vectors are based on non-cytopathic eukaryotic viruses in which non-essential genes have been replaced with the gene of interest. Non-cytopathic

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viruses include retroviruses, the life cycle of which involves reverse transcription of genomic viral RNA into DNA with subsequent proviral integration into host cellular DNA. Adenoviruses and retroviruses have been approved for human gene therapy trials. In general, the retroviruses are replication-deficient (i.e., capable of directing synthesis of the desired

5   proteins, but incapable of manufacturing an infectious particle). Such genetically altered retroviral expression vectors have general utility for the high-efficiency transduction of genes *in vivo*. Standard protocols for producing replication-deficient retroviruses (including the steps of incorporation of exogenous genetic material into a plasmid, transfection of a packaging cell lined with plasmid, production of recombinant retroviruses by the packaging

10   cell line, collection of viral particles from tissue culture media, and infection of the target cells with viral particles) are provided in Kriegler, M., "Gene Transfer and Expression, A Laboratory Manual," W.H. Freeman Co., New York (1990) and Murry, E.J. Ed. "Methods in Molecular Biology," vol. 7, Humana Press, Inc., Clifton, New Jersey (1991).

Preferably the foregoing nucleic acid delivery vectors: (1) contain exogenous genetic

15   material that can be transcribed and translated in a mammalian cell and that can induce an immune response in a host, and (2) contain on a surface a ligand that selectively binds to a receptor on the surface of a target cell, such as a mammalian cell, and thereby gains entry to the target cell.

Various techniques may be employed for introducing nucleic acids of the invention

20   into cells, depending on whether the nucleic acids are introduced *in vitro* or *in vivo* in a host. Such techniques include transfection of nucleic acid-CaPO$_4$ precipitates, transfection of nucleic acids associated with DEAE, transfection or infection with the foregoing viruses including the nucleic acid of interest, liposome mediated transfection, and the like. For certain uses, it is preferred to target the nucleic acid to particular cells. In such instances, a

25   vehicle used for delivering a nucleic acid of the invention into a cell (e.g., a retrovirus, or other virus; a liposome) can have a targeting molecule attached thereto. For example, a molecule such as an antibody specific for a surface membrane protein on the target cell or a ligand for a receptor on the target cell can be bound to or incorporated within the nucleic acid delivery vehicle. Preferred antibodies include antibodies which selectively bind a cancer

30   associated antigen, alone or as a complex with a MHC molecule. Especially preferred are monoclonal antibodies. Where liposomes are employed to deliver the nucleic acids of the invention, proteins which bind to a surface membrane protein associated with endocytosis

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may be incorporated into the liposome formulation for targeting and/or to facilitate uptake. Such proteins include capsid proteins or fragments thereof tropic for a particular cell type, antibodies for proteins which undergo internalization in cycling, proteins that target intracellular localization and enhance intracellular half life, and the like. Polymeric delivery systems also have been used successfully to deliver nucleic acids into cells, as is known by those skilled in the art. Such systems even permit oral delivery of nucleic acids.

The therapeutics of the invention can be administered by any conventional route, including injection or by gradual infusion over time. The administration may, for example, be oral, intravenous, intraperitoneal, intramuscular, intracavity, subcutaneous, or transdermal. When cancer associated antigen peptides are used for vaccination, modes of administration which effectively deliver the cancer associated antigen and adjuvant, such that an immune response to the antigen is increased, can be used. For administration of a cancer associated antigen peptide in adjuvant, preferred methods include intradermal, intravenous, intramuscular and subcutaneous administration. Although these are preferred embodiments, the invention is not limited by the particular modes of administration disclosed herein. Standard references in the art (e.g., *Remington's Pharmaceutical Sciences*, 18th edition, 1990) provide modes of administration and formulations for delivery of immunogens with adjuvant or in a non-adjuvant carrier. When antibodies are used therapeutically, a preferred route of administration is by pulmonary aerosol. Techniques for preparing aerosol delivery systems containing antibodies are well known to those of skill in the art. Generally, such systems should utilize components which will not significantly impair the biological properties of the antibodies, such as the paratope binding capacity (see, for example, Sciarra and Cutie, "Aerosols," in Remington's Pharmaceutical Sciences, 18th edition, 1990, pp 1694-1712; incorporated by reference). Those of skill in the art can readily determine the various parameters and conditions for producing antibody aerosols without resort to undue experimentation. When using antisense preparations of the invention, slow intravenous administration is preferred.

The compositions of the invention are administered in effective amounts. An "effective amount" is that amount of a cancer associated antigen composition that alone, or together with further doses, produces the desired response, e.g. increases an immune response to the cancer associated antigen. In the case of treating a particular disease or condition characterized by expression of one or more cancer associated antigens, such as breast, gastric

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or prostate cancers, the desired response is inhibiting the progression of the disease. This may involve only slowing the progression of the disease temporarily, although more preferably, it involves halting the progression of the disease permanently. This can be monitored by routine methods or can be monitored according to diagnostic methods of the invention discussed

5   herein. The desired response to treatment of the disease or condition also can be delaying the onset or even preventing the onset of the disease or condition.

Such amounts will depend, of course, on the particular condition being treated, the severity of the condition, the individual patient parameters including age, physical condition, size and weight, the duration of the treatment, the nature of concurrent therapy (if any), the

10   specific route of administration and like factors within the knowledge and expertise of the health practitioner. These factors are well known to those of ordinary skill in the art and can be addressed with no more than routine experimentation. It is generally preferred that a maximum dose of the individual components or combinations thereof be used, that is, the highest safe dose according to sound medical judgment. It will be understood by those of

15   ordinary skill in the art, however, that a patient may insist upon a lower dose or tolerable dose for medical reasons, psychological reasons or for virtually any other reasons.

The pharmaceutical compositions used in the foregoing methods preferably are sterile and contain an effective amount of cancer associated antigen or nucleic acid encoding cancer associated antigen for producing the desired response in a unit of weight or volume suitable

20   for administration to a patient. The response can, for example, be measured by determining the immune response following administration of the cancer associated antigen composition via a reporter system by measuring downstream effects such as gene expression, or by measuring the physiological effects of the cancer associated antigen composition, such as regression of a tumor or decrease of disease symptoms. Other assays will be known to one of

25   ordinary skill in the art and can be employed for measuring the level of the response.

The doses of cancer associated antigen compositions (e.g., polypeptide, peptide, antibody, cell or nucleic acid) administered to a subject can be chosen in accordance with different parameters, in particular in accordance with the mode of administration used and the state of the subject. Other factors include the desired period of treatment. In the event that a

30   response in a subject is insufficient at the initial doses applied, higher doses (or effectively higher doses by a different, more localized delivery route) may be employed to the extent that patient tolerance permits.

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In general, for treatments for eliciting or increasing an immune response, doses of cancer associated antigen are formulated and administered in doses between 1 ng and 1 mg, and preferably between 10 ng and 100 μg, according to any standard procedure in the art. Where nucleic acids encoding cancer associated antigen of variants thereof are employed,

5   doses of between 1 ng and 0.1 mg generally will be formulated and administered according to standard procedures. Other protocols for the administration of cancer associated antigen compositions will be known to one of ordinary skill in the art, in which the dose amount, schedule of injections, sites of injections, mode of administration (e.g., intra-tumoral) and the like vary from the foregoing. Administration of cancer associated antigen compositions to

10   mammals other than humans, e.g. for testing purposes or veterinary therapeutic purposes, is carried out under substantially the same conditions as described above.

When administered, the pharmaceutical compositions of the invention are applied in pharmaceutically-acceptable amounts and in pharmaceutically-acceptable preparations. The term "pharmaceutically acceptable" means a non-toxic material that does not interfere with

15   the effectiveness of the biological activity of the active ingredients. Such preparations may routinely contain salts, buffering agents, preservatives, compatible carriers, and optionally other therapeutic agents. When used in medicine, the salts should be pharmaceutically acceptable, but non-pharmaceutically acceptable salts may conveniently be used to prepare pharmaceutically-acceptable salts thereof and are not excluded from the scope of the

20   invention. Such pharmacologically and pharmaceutically-acceptable salts include, but are not limited to, those prepared from the following acids: hydrochloric, hydrobromic, sulfuric, nitric, phosphoric, maleic, acetic, salicylic, citric, formic, malonic, succinic, and the like. Also, pharmaceutically-acceptable salts can be prepared as alkaline metal or alkaline earth salts, such as sodium, potassium or calcium salts.

25   A cancer associated antigen composition may be combined, if desired, with a pharmaceutically-acceptable carrier. The term "pharmaceutically-acceptable carrier" as used herein means one or more compatible solid or liquid fillers, diluents or encapsulating substances which are suitable for administration into a human. The term "carrier" denotes an organic or inorganic ingredient, natural or synthetic, with which the active ingredient is

30   combined to facilitate the application. The components of the pharmaceutical compositions also are capable of being co-mingled with the molecules of the present invention, and with each other, in a manner such that there is no interaction which would substantially impair the

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desired pharmaceutical efficacy.

The pharmaceutical compositions may contain suitable buffering agents, including: acetic acid in a salt; citric acid in a salt; boric acid in a salt; and phosphoric acid in a salt.

The pharmaceutical compositions also may contain, optionally, suitable preservatives, such as: benzalkonium chloride; chlorobutanol; parabens and thimerosal.

The pharmaceutical compositions may conveniently be presented in unit dosage form and may be prepared by any of the methods well-known in the art of pharmacy. All methods include the step of bringing the active agent into association with a carrier which constitutes one or more accessory ingredients. In general, the compositions are prepared by uniformly and intimately bringing the active compound into association with a liquid carrier, a finely divided solid carrier, or both, and then, if necessary, shaping the product.

Compositions suitable for oral administration may be presented as discrete units, such as capsules, tablets, lozenges, each containing a predetermined amount of the active compound. Other compositions include suspensions in aqueous liquids or non-aqueous liquids such as a syrup, elixir or an emulsion.

Compositions suitable for parenteral administration conveniently comprise a sterile aqueous or non-aqueous preparation of cancer associated antigen polypeptides or nucleic acids, which is preferably isotonic with the blood of the recipient. This preparation may be formulated according to known methods using suitable dispersing or wetting agents and suspending agents. The sterile injectable preparation also may be a sterile injectable solution or suspension in a non-toxic parenterally-acceptable diluent or solvent, for example, as a solution in 1,3-butane diol. Among the acceptable vehicles and solvents that may be employed are water, Ringer's solution, and isotonic sodium chloride solution. In addition, sterile, fixed oils are conventionally employed as a solvent or suspending medium. For this purpose any bland fixed oil may be employed including synthetic mono-or di-glycerides. In addition, fatty acids such as oleic acid may be used in the preparation of injectables. Carrier formulation suitable for oral, subcutaneous, intravenous, intramuscular, etc. administrations can be found in *Remington's Pharmaceutical Sciences*, Mack Publishing Co., Easton, PA.

Examples

Example 1: SEREX screening of breast, gastric and prostate cancer cells

Breast, gastric and prostate cancer cDNA libraries were established, using standard

techniques, and the libraries were screened, using the SEREX methodology described by Sahin et al., *Proc. Natl. Acad. Sci. USA* 92: 11810 (1995), and by Chen et al., *Proc. Natl. Acad. Sci. USA* 94: 1914 (1997), each of which is incorporated by reference in its entirety.

To be specific, total RNA was isolated by homogenizing tumor samples in 4M
5 guanidinium thiocyanate/0.5% sodium N-lauryl sarcosine/25 mM EDTA followed by centrifugation in 5.7 M CsCl/25 mM sodium acetate/10 µM EDTA at 32,000 rpm. Total mRNA was removed by passing the sample over an oligo-dT cellulose column. The cDNA libraries were then constructed by taking 5 µg of mRNA, using standard methodologies to reverse transcribe the material. Breast cancer libraries were prepared from two different
10 breast cancer patients, referred to as "MT" and "MK". Gastric cancer libraries were prepared from a gastric cancer patient, referred to as "YS".

The cDNA was used to construct a lambda phage library, and 500 phages were plated onto XL1-Blue MRF *E. coli*, and incubated for eight hours at 37°C. A nitrocellulose membrane was then placed on the plate, followed by overnight incubation. The membrane
15 was then washed, four times, with Tris buffered saline (TBS) which contained 0.05% Tween, and was then immersed in TBS containing 5% non-fat dried milk. After one hour, the membrane was incubated with conjugates of peroxidase-goat anti human IgG specific for Fc portions of human antibodies (1:2000, diluted in TBS with 1% BSA). The incubation was carried out for one hour, at room temperature, and the membrane was then washed three times
20 with TBS. Those clones which produced antibodies were visualized with 0.06% 3,3'diaminobenzidine tetrachloride and 0.015% H_2O_2, in 50 mM Tris (pH 7.5). Any clones which produced immunoglobulin were marked, and then the membrane was washed, two further times, with TBS that contained 0.05% Tween, and then twice with "neat" TBS.

The membranes were then incubated in 1:100 diluted patient serum, overnight, at 4°C.
25 The patient serum had been pretreated. Specifically, 5 ml samples were diluted to 10 ml with TBS containing 1% bovine serum albumin, and 0.02% Na_3N. The serum had been treated to remove antibodies to bacteriophage, by passing it through a 5 ml Sepharose column, to which a lysate of *E. coli* Y1090 had been attached, followed by passage over a second column which had *E. coli* lysate and lysate of *E. coli* infected with lambda bacteriophage. The screening was
30 carried out five times. The samples were then diluted to 50 ml, and kept at -80°C, until used as described herein.

Following the overnight incubation with the membrane, the membrane was washed

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twice with TBS/0.05% Tween 20, and then once with TBS. A further incubation was carried

out, using the protocols discussed supra, for the peroxidase labeled antibodies.

The positive clones were then sequenced, using standard techniques. Following

comparison of the sequences to information available in data banks, clones were resolved into

5   known and unknown genes. Some clones corresponded to previously identified human

proteins and nucleotide sequences, and other clones have not been identified in humans

previously, although there were related molecules found in other species. Still other clones

represent molecules for which no related sequences were found (most clones contained very

short sections (e.g. 25 or fewer nucleotides) that corresponded to portions of unrelated

10   sequences). Some GenBank accession numbers representative of sequences having homology

to the cancer associated antigen nucleotide sequences of the invention are presented in Table

1. All of the homologous sequences are accessible in publicly-available databases by

reference to the sequences' accession numbers provided in Table 1.

15   Breast cancer clones:

The nucleotide sequences of clones derived from breast cancer patients "MT" and

"MK" are presented as SEQ ID NOs:1-205. Polypeptides encoded by open reading frames of

the nucleic acid clones are presented as SEQ ID Nos: 594-829; the correspondence between

nucleic acid molecules and encoded polypeptides is shown in Table 2.

20

        Gastric cancer clones:

The nucleotide sequences of clones derived from gastric cancer patient "YS" are

presented as SEQ ID NOs:206-352 (clones beginning with "YS"). Polypeptides encoded by

open reading frames of the YS nucleic acid clones are presented as SEQ ID Nos:830-1083;

25   the correspondence between nucleic acid molecules and encoded polypeptides is shown in

Table 2.

        Prostate cancer clones

The nucleotide sequences of clones derived from prostate cancer patient "ZH" are

30   presented as SEQ ID NOs:353-593(clones beginning with "ZH"). Polypeptides encoded by

open reading frames of the ZH nucleic acid clones are presented as SEQ ID Nos:1084-1332;

the correspondence between nucleic acid molecules and encoded polypeptides is shown in

Table 2.

Table 1: Sequence homologies (GenBank Accession Numbers)

5

SEQ ID NO. 1
NGO-Br-38 combined
NM_006644.1, AF039695.1, AB003334.1, AB003333.1, D86956.1, D67017.1, D67016.1, Z47807.1, NM_013559.1,
L40406.1, AB005282.1, AB005281.1, AB005280.1, AB023420.1, X67643.1, NM_008300.1, D85904.1, AC011661.5,
10 AE003611.1, AL109620.4, AC007049.8, AC005992.15, AC007066.4, AC006080.1, AC009155.3, AF222716.1,
AC009223.2, AC004251.1, AC002367.1, AL161553.2, AL161539.2, AL117202.1, AL009183.10, Z97336.1, AB006696.1,
AI658961.1, AW571648.1, AW474070.1, AA843693.1, AW608075.1, AW470142.1, AW572452.1, AA543054.1,
AW385582.1, AI742981.1, AW612980.1, AW612983.1, AI582881.1, AI751853.1, AI378269.1, AI920808.1, AI654608.1,
AI819251.1, AI831339.1, AI753470.1, AI312753.1, AI803588.1, AI563996.1, AA232636.1, AW015796.1, AW117974.1,
15 AI668853.1, AA535277.1, AA993280.1, AA632202.1, AA912023.1, AW627645.1, AW027050.1, AI337175.1,
AI123280.1, AA761750.1, AW316651.1, AI223412.1, AW771160.1, AA219263.1, AW068948.1, AA482770.1,
AA166716.1, AW236067.1, AA166806.1, AA485151.1, AI369932.1, AI250881.1, AA933881.1, AI262020.1, AI751852.1,
AI050716.1, H52653.1, AI651186.1, AA678506.1, AA582157.1, AW628153.1, AI493255.1, AW340810.1, AI223825.1,
AW837156.1, AA136424.1, AA953645.1, AI582484.1, AI673134.1, AW820299.1, AA394027.1, T58153.1, T36072.1,
20 AW390368.1, F22410.1, AA417317.1, AW020035.1, AA278231.1, AI361237.1, AI288972.1, AA810686.1, AW103624.1,
AW604836.1, AA730742.1, AA082043.1, Z20100.1, D58216.1, AI799265.1, D29622.1, AA435594.1, AA233888.1,
AA485036.1, AI612928.1, AI630481.1, F07487.1, AA731716.1, AA417255.1, AA804371.1, AA571359.1, AA465183.1,
F08794.1, T34783.1, Z41841.1, F03714.1, AL137142.8, AC012569.3, AP001563.1, AC022671.2, AC020999.4,
AC011743.3, AP000635.1, AP000610.2, AC008070.3, AC022797.3, AC005506.6, AL096782.3,

25

SEQ ID NO. 2
NGO-Br-39
MK262/T3 5'
AF039695.1, AB003334.1, D86956.1, NM_006644.1, AB003333.1, NM_013559.1, D67016.1, L40406.1, Z47807.1,
30 D67017.1, AB005277.1, AB005278.1, NM_011020.1, U23921.1, D49482.1, AB001926.1, NM_014278.1, AB023421.1,
L12723.1, AB005279.1, X67643.1, AB005280.1, AF077354.1, NM_008300.1, AB023420.1, D85904.1, AB005281.1,
AC024830.1, L08605.1, AC011294.3, AC009424.2, AC022520.2, NM_013393.1, AC019018.7, AF093415.1, AF161311.1,
AF136711.1, AE001434.1, AE001433.1, Z49769.1, AC024813.1, AE003645.1, AC011609.9, AC004150.8, AC004801.1,
AL163244.2, AP001699.1, AP001605.1, L16771.1, AW820299.1, AW859988.1, AW859943.1, AW604836.1,
35 AW820234.1, AW206874.1, AI094015.1, AA885873.1, AW820232.1, AI702970.1, AW390368.1, AA777564.1,
AA580595.1, H91160.1, AA777031.1, AW608075.1, H54657.1, H64019.1, AI658961.1, H63551.1, AA811573.1,
AW628153.1, AA749004.1, AI800379.1, W45471.1, AI751852.1, AW385582.1, AI290252.1, AW389335.1, AA953645.1,
AW238563.1, AA805016.1, F08794.1, F07487.1, AW631423.1, T63090.1, N84915.1, AW630933.1, AW474070.1,
AA166806.1, N84914.1, AI758907.1, AW103624.1, AW571648.1, AA394027.1, AI002886.1, AA094644.1, AW391561.1,
40 AW362751.1, H63595.1, AW609781.1, H54656.1, AW572452.1, W86085.1, AW577563.1, AW820231.1, AW362766.1,
·AA555929.1, AA555921.1, AA485036.1, AW820224.1, AW391572.1, H91211.1, AW316651.1, AI838486.1, AA571359.1,
AJ397361.1, AA334479.1, AW754210.1, AW583074.1, AI760838.1, AW578928.1, AA212025.1, C81194.1, AA645750.1,
AW819755.1, AW125594.1, AU080443.1, AA919208.1, AA755774.1, AA615363.1, AA445826.1, AA117945.1,
AI337175.1, AW819997.1, AW470142.1, AA626524.1, AA079853.1, W22433.1, T29047.1, AI626242.1, AW839103.1,
45 AU035998.1, AA624532.1, AA572403.1, AA431598.1, AA370218.1, AA571473.1, AW754207.1, AW366794.1,
AL137142.8, AC015501.3, AC021286.3, AC006882.2, AC068895.1, AC055115.2, AC013660.4, AL354918.3,
AL138763.2, AC010646.4, AC010267.5, AC008642.3, AC008484.3, AC006279.6, AC006278.6, AC016522.4,
AC019327.4, AC021435.2, AC011301.4, AF216669.1, AL159973.2, AL034557.7,

50 SEQ ID NO. 3
NGO-Br-39
MK494/T3 5'
AF039695.1, AB003334.1, D86956.1, Z47807.1, NM_006644.1, AB003333.1, NM_013559.1, D67016.1, L40406.1,
D67017.1, AB005277.1, AB005278.1, AB005276.1, NM_011020.1, U23921.1, D49482.1, AB001926.1, NM_014278.1,
55 AB023421.1, L12723.1, AB005279.1, X67643.1, AF077354.1, NM_008300.1, AB005275.1, AB023420.1, D85904.1,
AC009424.2, NM_013393.1, AF093415.1, AC010852.5, AF161311.1, AF136711.1, AC005516.1, AE001434.1,
AE001433.1, AC003099.1, Z49769.1, AP001821.1, AC007678.3, AC006403.3, AC024813.1, AE003684.1, AC004668.1,
AC004879.1, AC006354.2, AC010183.6, AC005049.2, AC004150.8, AC004801.1, AF049895.1, AF068862.1,
AF004739.1, AL162911.1, Z68341.1, AL032629.1, AL023578.1, U41009.1, L16771.1, AI094015.1, AW206874.1,
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25   AI754819.1, AI567970.1, AA703912.1, AA493400.1, AA173193.1, R54223.1, AW754207.1, AW545353.1, AW545094.1,
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40   AB005280.1, X67643.1, AF077354.1, NM_008300.1, AB023420.1, D85904.1, AB005281.1, AL109620.4, L08605.1,
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5   AA136424.1, AI223825.1, AA435594.1, AI582484.1, AI751852.1, AA394027.1, AI288972.1, AW628153.1, AI337175.1,
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10   AA856248.1, Z41841.1, AA238818.1, AI115351.1, AV347805.1, AW147250.1, AI937768.1, AV200611.1, AV181186.1,
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10   AL161553.2, AL161539.2, AL139077.2, AP001689.1, Z97336.1, AP000477.2, AE003728.1, AE003686.1, AE003627.1,
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Z20100.1, AI799265.1, AW085874.1, AA624532.1, AA571473.1, AA571359.1, AA572403.1, AA417317.1, AI751852.1,
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40   AI087282.1, AA840049.1, AA726333.1, AW223053.1, AV294240.1, AI986092.1, AI904139.1, AV052268.1, AI510184.1,
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AA889865.1, C05965.1, R54285.1, R54280.1, F06574.1, T34309.1, T32678.1, AW399587.1, AW398501.1, AA955194.1,
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35　AC016474.2, AC010118.5, AC020189.1, AC017393.1, U82205.1, AL356126.1, AC026877.4, AC064824.2, AC053519.2,
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AC026047.2, AC013693.3, AC021769.3, AC020577.1, AC019338.4, AC013718.3, AC015469.2, AC023823.2,
AC013415.3, AC020230.1, AC021758.1, AC016495.1, AC013276.2, AC013485.1, AC012667.1, AC007515.1,
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40　AP001324.1, AP001104.1,

SEQ ID NO.117
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50　AW078537.1, AI983562.1, AA075477.1, AI870195.1, AA622193.1, AW341927.1, W37755.1, W37973.1, AA642656.1,
AI492530.1, AI500507.1, AA837842.1, AI865686.1, AA587444.1, AA635989.1, AI285460.1, AI862178.1, AA937007.1,
AA903286.1, AI289455.1, AA533156.1, AI084027.1, AA627607.1, AW373870.1, AA075671.1, AA532369.1,
AA579973.1, AA917383.1, AW026936.1, AW793466.1, AI138455.1, T29528.1, AW577433.1, AI073859.1, AI371522.1,
AI702366.1, AW609821.1, W01896.1, AI500511.1, AW468007.1, AI969542.1, AI859339.1, AI922648.1, AA586545.1,
55　AA487528.1, AA315174.1, AI081732.1, AI075062.1, AA937600.1, AW449506.1, AA827350.1, AA131800.1,
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AA834863.1, AI905784.1, AI905719.1, AI861968.1, AI251115.1, AW817431.1, AW304126.1, AA564905.1, AA056488.1,
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60　AI007134.1, AA175795.1, AA139382.1, AI386222.1, AI036133.1, AA153027.1, AA153021.1, AL161639.4, AL139416.1,
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AC026704.3, AC022418.3, AC010230.3, AC009051.5, AC009050.4, AC025073.2, AC027110.2, AC027630.4,
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     AC004930.1, NC_001143.1, AF085699.1, AC007980.1, AC005669.1, AL109935.39, AB038490.1, Z28127.1, X72016.1,
10   AB015429.1, AB020867.1, NM_001567.2, AC005917.2, AE003603.1, NM_013134.1, NM_006460.1, AC006312.8,
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     X93922.1, AI906045.1, AA131850.1, AW368079.1, AW362711.1, AW815880.1, W72748.1, AW297239.1, AW820994.1,
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     AW821048.1, AW804484.1, AI969542.1, AI962517.1, AI683358.1, AA911189.1, AA164464.1, AW468007.1,
15   AI989871.1, AI528561.1, AW474440.1, AI683206.1, AA878690.1, AA487367.1, F07031.1, AW804431.1, AA487747.1,
     AI905784.1, AI905719.1, AA873192.1, AI922648.1, AW320458.1, AW211765.1, AA122936.1, AW820809.1,
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     F05698.1, AI859339.1, AW797814.1, AA471169.1, AA880099.1, AW577433.1, AI500511.1, AA044017.1, T87056.1,
     AI922921.1, AA848004.1, AA506001.1, AV362793.1, AA582749.1, W13273.1, AI651570.1, AI075062.1, AA690573.1,
20   AA665504.1, AA057242.1, AW665096.1, AW454822.1, AL135036.1, AW166154.1, AI811680.1, AI796944.1,
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25   AC018354.6, AC012053.2, AC025975.2, AC027743.1, AC024047.2, AC026047.2, AC025865.2, AC013612.3,
     AC022854.3, AC022679.3, AC020753.2, AC018814.3, AC018497.4, AC023201.2, AC006295.8, AC013759.2,
     AC017228.1, AF166490.1, AL354770.2, AL356008.1, AL355990.1, AL161658.3, AL160006.2, AP001385.1, AP001157.1,
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     AC022522.2, NM_010260.1, AF109168.1, AF077007.1, AJ007970.1, AC006642.1, U28927.1, AL163226.2, AL049555.6,
35   AP001681.1, U40937.1, AP001137.1, AE002269.1, AC006241.1, AC004558.1, AF052729.1, AL163235.2, AP001690.1,
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     AW058212.1, AI760378.1, AI439472.1, AW078537.1, AI983562.1, AA075477.1, AI870195.1, AW341927.1, AI492530.1,
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     AA587444.1, AI285460.1, AA937007.1, AA903286.1, AI289455.1, AA533156.1, AA627607.1, AI084027.1, AA532369.1,
40   AA579973.1, AW373870.1, AA917383.1, AA075671.1, AW026936.1, AI138455.1, AI073859.1, AW793466.1, T29528.1,
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     AI922648.1, AA586545.1, AI280597.1, AA131800.1, AA487528.1, AA315174.1, AW796865.1, AI081732.1, AI075062.1,
     AW449506.1, AA937600.1, AI905784.1, AI905719.1, AI251115.1, AA827350.1, AW817431.1, AW799191.1,
     AI910674.1, AA810201.1, AA650178.1, AA486850.1, AW804484.1, AA424529.1, AA837672.1, AA834863.1,
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     AW797212.1, AI760921.1, AA947554.1, H05300.1, AI007134.1, AA175795.1, AA139382.1, AL161639.4, AL139416.1,
     AL160008.1, AC026091.3, AC013475.4, AC027453.2, AC016190.3, AC021149.4, AC027133.1, AC021688.2,
     AC016774.2, AC006883.2, AC022330.9, AC018461.18, AC022418.3, AC010230.3, AC009051.5, AC009050.4,
50   AC011784.3, AC027168.2, AC009625.3, AC026590.2, AC015972.3, AC016686.4, AC024403.2, AC013404.1,
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     NM_010260.1, AF109168.1, AF077007.1, AJ007970.1, U44731.1, NM_008620.1, M81128.1, AC006112.2, X77129.1,
     Z95388.1, Z78546.1, AE003472.1, AC004969.1, AC005053.1, AC005061.2, AF085699.1, AC007980.1, AC005557.1,
     AL109935.39, AL133283.9, AL008639.15, X92112.1, AL117265.1, AB015429.1, AB020867.1, AF257304.1, AF257303.1,
60   AE003459.1, NM_013134.1, AC007177.1, AC004798.1, AC003111.1, AF003626.1, U69633.1, AL117319.1, AL034426.4,
     AL031587.3, U29614.1, M29249.1, AW297239.1, AW368079.1, AI962517.1, AW362711.1, AW815880.1, AI795779.1,
     AI528561.1, AW320458.1, AA122936.1, AA880099.1, AA424070.1, AW211765.1, AA100063.1, AA305909.1,
     AA354725.1, AI906045.1, AW629741.1, AA131850.1, AA347633.1, AW239153.1, AA709608.1, AA296543.1, W77927.1,
     AA911189.1, AA878690.1, AA873192.1, AA337079.1, F14838.1, AW106727.1, AA576498.1, W72748.1, AW428394.1,

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AW817360.1, F14828.1, AW578905.1, AW861558.1, AW669464.1, AA158924.1, AU076892.1, AI626652.1, AI979397.1,
AI922921.1, AJ980812.1, AA848004.1, AA506001.1, AA582749.1, W13273.1, AI651570.1, AI529783.1, AI194988.1,
AA889865.1, C05965.1, R54285.1, R54280.1, F06574.1, T34309.1, T32678.1, AW399587.1, AW398501.1, AW256377.1,
5   AV046437.2, AA955194.1, C90826.1, C77542.1, AL160008.1, AL139416.1, AC021689.2, AL138786.3,
AL355818.2, AC021626.3, AC007223.1, AC010872.4, AC024551.3, AC060776.2, AC063963.3, AC034166.2,
AC021399.3, AC025482.2, AC022015.2, AC024303.2, AC016696.4, AC011210.3, AC016474.2, AC010118.5,
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10   SEQ ID NO.121
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15   AL163226.2, AL163210.2, AP001681.1, AJ010598.1, AL035640.2, AP001137.1, AE002269.1, NM_007199.1,
AF113136.1, AC006241.1, U41556.1, AL163235.2, AL109984.14, Z82288.2, Z81102.1, Z70285.1, AP001690.1,
U37429.1, Y10720.1, Z73419.1, AP000476.2, AB005234.1, AW614912.1, AI830004.1, AW001215.1, AA876142.1,
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20   AA587444.1, AI285460.1, AA903286.1, AA937007.1, AI289455.1, AA533156.1, AI084027.1, AA532369.1, AA627607.1,
AA579973.1, AA917383.1, AW026936.1, AI138455.1, AW373870.1, AI073859.1, AA075671.1, AI371522.1, AI702366.1,
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25   AA424529.1, AW796865.1, AW304126.1, AI861968.1, AA564905.1, AA056488.1, AA586545.1, AW363341.1,
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AA947554.1, AI007134.1, AA175795.1, AA139382.1, AW821048.1, AA153021.1, AI386222.1, AA153027.1, W37972.1,
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AC027168.2, AC026590.2, AC026549.2, AF235106.1, AC015972.3, AC034223.1, AC012148.2, AC025790.2,
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45   AA587444.1, AI862178.1, AI285460.1, AA903286.1, AA937007.1, AI289455.1, AA533156.1, AW373870.1, AI084027.1,
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50   AA827350.1, AW799191.1, AI910674.1, AA810201.1, AA650178.1, AA486850.1, AA837672.1, AA834863.1,
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AI246407.1, AW821048.1, AA424397.1, H05300.1, AW799183.1, W37972.1, AW470713.1, AA175795.1, AA139382.1,
AA153021.1, AI386222.1, AA153027.1, AL161639.4, AL139416.1, AL160008.1, AC060233.1, AC026091.3,
55   AC013475.4, AC008878.6, AC008373.6, AC010630.3, AC025799.2, AC016190.3, AC027133.1, AC011764.5,
AC014685.1,

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U06117.1, D10044.1, D11456.1, NM_001567.2, AC009890.12, AC010489.4, AC007048.4, AC005917.2, AC006832.2,

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5 AI859339.1, AI500511.1, AW577433.1, AI251115.1, AW797814.1, AW797815.1, AA471169.1, AA044192.1,
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AI983562.1, AA876142.1, H05350.1, AA131850.1, W72748.1, AI439472.1, AA486849.1, F06345.1, AW804431.1,
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10 AW609821.1, AI760378.1, AW078537.1, AA487367.1, AW614912.1, T87056.1, T29528.1, W37973.1, F07031.1,
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25 AP001690.1, AL034567.1, X56844.1, AP000476.2, AB005234.1, L11794.1, L11777.1, X99948.1, AW001215.1,
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AA075671.1, AW373870.1, AA533156.1, AI084027.1, AA627607.1, AA532369.1, AA579973.1, AW793466.1,
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55 AF125463.1, AL163210.2, AL135749.2, AL132880.2, AL161581.2, AL161516.2, AL117204.1, Z81088.1, AL078588.9,
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5   AC008731.4, AC063979.1, AC017106.3, AC040911.1, AC024047.2, AC027362.1, AC012241.4, AC015975.3,
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15   Z95388.1, AB015429.1, AB020867.1, AC005103.3, NM_013134.1, NM_006460.1, U44731.1, AF047825.1, AC004798.1,
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35   L04287.1, L03711.1, X68492.1, D63880.1, AC006142.1, AC010186.6, AC008078.11, AC004131.1, U46596.1,
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40   AI326431.1, AA562089.1, AA104976.1, W82776.1, AI353217.1, AA813637.1, AA700898.1, AV182864.1, AA918411.1,
AA890493.1, U25927.1, AV398409.1, AV344143.1, AW123407.1, AA388686.1, AA156216.1, AL133174.11,
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AL031007.1, X06997.1, AC024077.2, AC007559.3, AC004988.2, AF134199.1, AC005520.2, AC006518.17, AF063866.1,
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55   AA157806.1, AI925182.1, AA846829.1, AA191622.1, AA609322.1, AA910279.1, AI333376.1, H16250.1, AA034036.1,
AI557117.1, H11397.1, N45294.1, AW169049.1, AA907298.1, AI819766.1, N71642.1, AW263961.1, T15527.1,
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60   AI864144.1, AI216722.1, AI921819.1, AI190687.1, AA074277.1, N51259.1, F10050.1, AA427905.1, AI814813.1,
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AA135198.1, AA593048.1, AA135111.1, AA207148.1, Z41528.1, AA135106.1, AW272442.1, AI963361.1, AW090441.1,
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SEQ ID NO. 130
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AC009415.2, AE003824.1, AC004460.1, NM_011261.1, AC008072.3, AC005046.3, AF115517.1, AC005467.1, U24703.1,
AE000943.1, AL049834.3, AL049546.3, Z93374.1, AL021939.1, Z74123.1, X51895.1, Z78583.1, D63520.1,
50   AW157207.1, AA972711.1, AW770787.1, AW468156.1, AI266259.1, AA599244.1, AI377803.1, AA527031.1,
AI572106.1, AA279430.1, AA725331.1, AI302964.1, AI567039.1, AW379942.1, D52427.1, D55742.1, AI593485.1,
AI956843.1, T10410.1, AA210577.1, C01624.1, AA165991.1, AW214633.1, AI551647.1, AW489266.1, AI467091.1,
AA473146.1, D55908.1, AI606224.1, AW163183.1, R98544.1, AA292113.1, AW385669.1, W45824.1, AI810043.1,
H33984.1, R21996.1, AW222072.1, AI632719.1, AI423781.1, AA829983.1, AA395972.1, AA274077.1, AA030373.1,
55   W20048.1, AL139274.6, AL137180.3, AL160258.3, AL138875.3, AL137000.3, AC027490.3, AC025451.3, AC010432.4,
AL137249.6, AC069145.1, AC069071.1, AC018473.9, AC006451.2, AC027189.2, AC023844.2, AC021677.3,
AC010109.4, AL135932.4, AL137013.3, AC041025.2, AC012211.3, AC027600.1, AC024254.2, AC024026.2,
AC023153.2, AC012369.2, AC018873.1, AF188032.1, AL139418.1, AP001813.1,

60   SEQ ID NO. 132
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5 AA167375.1, AI251893.1, AW609920.1, AI241041.1, AA764886.1, N33849.1, AI699744.1, H84943.1, AW163183.1, AA825378.1, N85349.1, AI642382.1, AA611337.1, AA279626.1, AV424771.1, AW416485.1, AW260960.1, AV061748.1, AV042292.2, AL139274.6, AL160258.3, AL137180.3, AC026297.2, AC025494.2, AL109926.2, AC027596.2, AC020987.4, AC023957.3, AC016187.4, AC062033.1, AC025104.2, AC025526.2, AC022744.2, AC024632.1, AC022691.1, AC009818.4, AC010204.8, AC008250.15, AC020418.1, AC009588.4, AC012259.2, AC014418.1,
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20 AW609920.1, AA764886.1, AI699744.1, AA825378.1, N85349.1, N33849.1, AA167374.1, AA471246.1, H84943.1, AI956621.1, AW163183.1, AI642382.1, AA611337.1, AV042292.2, AW646457.1, AW642567.1, AW416485.1, AW260960.1, AV061748.1, AI395491.1, AL139274.6, AL160258.3, AL137180.3, AL139223.2, AC016904.2, AC026297.2, AC025494.2, AC016469.4, AC012219.3, AC020987.4, AC023957.3, AC016187.4, AC025104.2, AC009818.4, AC010204.8, AC008250.15, AC020418.1, AC012259.2, AC007692.3, AL157389.3, AC037489.2,
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30 AL122125.1, AP001448.1, AP001023.1, AP000813.1, AP000675.1, AP000624.1,

SEQ ID NO. 134
NGO-Br-42
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40 AI377803.1, AA527031.1, AI572106.1, AA279430.1, AA725331.1, AI302964.1, AI567039.1, AW379942.1, D55742.1, T10410.1, D52427.1, AI593485.1, AI956843.1, C01624.1, AA210577.1, AA165991.1, AW214633.1, AI551647.1, AW489266.1, AI467091.1, AA473146.1, D55908.1, AW163183.1, AI606224.1, R98544.1, AA292113.1, AW385669.1, AW061815.1, H33984.1, R21996.1, AW728990.1, AW222072.1, AI810043.1, AI632719.1, AI423781.1, AA829983.1, AA030373.1, AL139274.6, AL137180.3, AL160258.3, AL138875.3, AL137000.3, AC027490.3, AC025451.3,
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50 AL139418.1, AP001813.1,

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AF039695.1, AB003334.1, AB003333.1, D86956.1, Z47807.1, NM_013559.1, L40406.1, D67017.1, D67016.1,
AB005279.1, AE003433.1, AC010072.5, AC004674.1, AL078621.19, AL096821.2, Z71263.1, Y13478.1, AC008545.3,
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AW085727.1, AI188118.1, AI560115.1, AI754819.1, AI956648.1, AA493400.1, AW754210.1, AA191559.1, AA173193.1,
AW367717.1, AW583074.1, AI907727.1, AI627184.1, AW513086.1, AI952125.1, AW609784.1, AW192860.1,
AW489091.1, AW578990.1, AA205597.1, AI274739.1, AI014766.1, AA913650.1, AW363562.1, AI230094.1,
AI140781.1, AI375447.1, AI983708.1, W74245.1, AW613658.1, AA913187.1, AA633656.1, AA162193.1, AI678576.1,
AW817504.1, AA518224.1, AA210820.1, AW819755.1, AA216635.1, AI866008.1, AA354293.1, AA874242.1,
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AC021076.3, AC036128.2, AC068226.1, AC025689.3, AC067810.1, AC027184.2, AC017102.5, AC023692.2,
AC018288.1, AL121956.4, AL138965.3,

SEQ ID NO. 137
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MK132/T3 5'
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AJ132792.1, NM_013559.1, AE003820.1, AE003518.1, AC007453.1, AC006409.2, U76309.1, AL121775.2, AL133033.1,
AL034348.5, AL034551.14, AL008628.1, L40406.1, AP000555.1, AB028948.1, D67017.1, D67016.1, AF245116.1,
AC008865.3, AC007171.4, AC006200.2, AC006624.1, NM_013513.1, AE003750.1, AE003571.1, AC011809.2,
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M57719.1, L35933.1, X56682.1, M59962.1, AW578992.1, AW363570.1, AW609809.1, AW391888.1, AW609816.1,
AW817219.1, AW367717.1, AW578990.1, AA191559.1, AW363562.1, AW583074.1, AL135032.1, AW609784.1,
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AC016065.4, AC009899.5, AC010563.3, AC013243.4, AC018288.1, AC015160.1, AC005450.4, AL356425.1,
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MK132/T7 3'
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AF164299.1, NM_008229.1, AC006355.3, AF071221.1, AC007172.6, AC005856.1, AC005495.1, AC004671.1, U31758.1,
AE001016.1, AL031853.1, AL023804.1, X59603.1, L39125.1, D01021.1, AI567970.1, AI925201.1, AW085727.1,
AI188118.1, AI560115.1, AI754819.1, AA493400.1, AA173193.1, AI627184.1, AW513086.1, AI952125.1, AW192860.1,
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5   AA633656.1, AI678576.1, AA210820.1, AA216635.1, AI866008.1, AA761335.1, AW545353.1, AA227204.1,
AW754210.1, AW545094.1, AW537735.1, AA991908.1, AW262251.1, AI408846.1, AW542227.1, AW819755.1,
AW819997.1, AW861588.1, N50726.1, AI956869.1, AW196018.1, AI799801.1, AW578928.1, AA687763.1, C76500.1,
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10   Z18817.1, AA823019.1, AI911599.1, AW060626.1, R60452.1, AW583074.1, AI197516.1, AA935133.1, AU015665.1,
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AA799083.1, AA543635.1, AW213908.1, AI576267.1, AV165705.1, AA434598.1, AA703912.1, AW071628.1,
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AV301839.1, AC048384.2, AC002518.1, AL160402.2, AC068975.1, AC026382.3, AC020551.2, AC021393.2,
15   AL353725.3, AL354926.1, AC018920.5, AC046135.4, AC064821.2, AC025511.2, AC026745.3, AC010464.4,
AC036128.2, AC021573.4, AC068383.1, AC066588.1, AC027012.2, AC018990.4, AC026061.2, AC021717.3,
AC024037.2, AC015653.3, AC019002.3, AC022038.2, AC017901.1, AC006911.1, AL121834.8, AL160290.3,
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20   SEQ ID NO.139
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     MK261/T3 5'
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     U23921.1, NM_014278.1, AB023421.1, NM_011020.1, D49482.1, AB001926.1, AL132776.11, AL078621.19, Y13478.1,
25   AC011751.2, AC009489.3, AC006502.2, AC002350.1, AC003006.1, AL135879.1, AL121790.2, AC007244.2,
     AC019183.3, AC010361.3, AC011292.2, AF248484.1, NM_013559.1, AC004459.1, AC003984.1, AC002460.1,
     AC004612.1, AC004822.1, AC006322.2, AC004988.2, AC005050.2, AC008173.2, AC004772.1, AC005406.2,
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     AF068862.1, AC004075.1, AC004043.1, U01882.1, AL163207.2, Z72001.1, AL160192.2, AL049555.6, AL078595.12,
30   U50871.1, AL035661.16, AL080316.8, AL050334.12, AL109854.10, AL096802.11, Z68873.1, AL031000.1, AL023806.1,
     Z97987.1, Z98748.1, Z84477.1, AL021307.1, L40406.1, AP001065.1, D67017.1, D67016.1, W74245.1, AA121736.1,
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     AI230094.1, R56974.1, AW861596.1, AV226442.1, AV226379.1, AA063966.1, AA821679.1, AA896038.1, AL135032.1,
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35   AA121221.1, AV226463.1, H93522.1, AA247166.1, W20649.1, AI956324.1, AW385268.1, AW385266.1, AJ396671.1,
     AW502280.1, AW501910.1, AW501774.1, AW274501.1, AU037061.1, AI085867.1, AA747312.1, AA102000.1,
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     AL135795.3, AC036128.2, AC010814.5, AC017022.3, AC022968.2, AC022760.2, AC009875.2, AL353625.2,
     AL121956.4, AP001587.1, AC021053.7, AC018474.9, AC034305.2, AC068992.3, AC040969.2, AC040965.2,
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     AC022135.3, AC008773.6, AC008968.4, AC010234.3, AC011346.3, AC008673.6, AC021595.3, AC062017.2,
     AC023116.4, AC010133.2, AC058804.1, AC018978.5, AC040961.1, AC026493.3, AC021464.2, AC023858.2,
     AC021948.3, AC018443.5, AC016763.5, AC021208.3, AC015823.3, AC022039.2, AC023560.2, AC009666.4,
     AC024010.2, AC010895.3, AC012669.2, AC021319.1, AC012502.2, AC013259.1, AL139375.7, AL355345.2,
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     Y13478.1, NM_006644.1, AC004003.1, AF039695.1, AF117829.1, AF069291.1, AC002350.1, AB003334.1, AB003333.1,
     D86956.1, L43098.1, L43082.1, AC010352.4, AC007730.2, AC007662.2, AF240629.1, AF123535.1, AC002124.1,
55   AF130247.2, AC005228.1, AC009248.6, AF081491.1, AF081490.1, AF081489.1, AF081488.1, AF081487.1, AF165138.1,
     AF064254.1, AF112117.1, U96409.1, AC005900.1, AC004636.1, AC004472.1, U69258.1, AL163224.2, AL163206.2,
     AL161537.2, X15901.1, Y08502.1, Z68873.1, AL022727.1, AL022097.1, AL031073.1, AL035528.2, AP001679.1,
     AP000957.2, AW489091.1, AI230094.1, AI956324.1, AI956249.1, AA591244.1, AI316935.1, AW069322.1, AA498893.1,
     AW318627.1, AI506418.1, AA542289.1, AA840049.1, AA205624.1, AI314009.1, AA499765.1, AV320109.1, W74245.1,
60   AA726333.1, AA408320.1, AA247166.1, AW755799.1, AW755396.1, AW568012.1, AW567990.1, AW397511.1,
     AW234798.1, AA162193.1, AW681906.1, AL045611.2, AI851924.1, AL044212.1, AL043449.1, AA793473.1,
     AA690112.1, AA675583.1, AA360776.1, AA183406.1, AA120371.1, AV131040.1, AV047607.2, AV047086.2,
     AI046570.1, AA499782.1, AA498000.1, AA144603.1, AA139245.1, AA138950.1, AA110497.1, AA062258.1,
     AA060083.1, H23069.1, H10565.1, R59827.1, R28864.1, AC020834.2, AC015501.3, AC021286.3, AC022550.1,

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AL135795.3, AL163545.4, AL160031.4, AC026084.2, AC026562.3, AC051613.3, AC008483.4, AC046137.3,
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5

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15   AA162193.1, N85657.1, AW069322.1, AI506418.1, AV226442.1, AI956648.1, AA499765.1, AA354293.1, AV320109.1,
AW318627.1, AA205624.1, AA063966.1, R56974.1, AV226379.1, AA247166.1, AA840049.1, AW385268.1,
AW385266.1, AA726333.1, AV340213.1, AI870749.1, AV047607.2, AV047086.2, AI046570.1, AA747312.1, C39670.1,
AA499782.1, AA498000.1, AA144603.1, AA139245.1, AA138950.1, AA110497.1, AA062258.1, AA060083.1, H23069.1,
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20   AL353608.2, AL135795.3, AL163545.4, AL160031.4, AC026084.2, AC026562.3, AC064862.2, AC016002.5,
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AL096802.11, Z97987.1, Z92844.1, Z98748.1, Z84475.1, AL009176.1, U41995.1, AB005275.1, Y15994.1, AB016880.1,
35   AB020870.1, AI956648.1, AA354293.1, AL135032.1, AA162193.1, W74245.1, AA821679.1, AA121736.1, AA103602.1,
AA874242.1, AA518224.1, AI907727.1, AA121221.1, AW861596.1, N85657.1, AA542289.1, AW582514.1, AW372094.1,
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AW817153.1, AW609859.1, AW609846.1, AW609816.1, AW609809.1, AW609769.1, AW582510.1, AW582499.1,
AW391901.1, AW381775.1, AW371552.1, AW371546.1, AA437859.1, AW609842.1, AW371550.1, AW817440.1,
40   AW817432.1, AW817319.1, AW609867.1, AW609856.1, AW391888.1, AW384296.1, AW371549.1, AW371548.1,
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AV226379.1, AW578926.1, AA063966.1, AA385978.1, AJ396671.1, AW371561.1, AI827505.1, D29434.1, AW748834.1,
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K01711.1, AB027827.1, AB027454.1, M20865.1, J04355.1, Z66517.1, AI181303.1, AW824953.1, AW123265.1,
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AU013359.1, AC025788.2, AC026250.3, AC011979.3, AC026628.2, AC009800.6, AC023126.2, AC014216.1,
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5   AC021857.2, AC010097.4, AC016475.1, AC012199.4, AC013013.1, AL031726.16, AL133259.23, AL355073.1,
AL353152.2, AL137183.1, AP001852.1, AC024905.7, AC024890.7, AC008713.5, AC011376.2, AC008856.4,
AC026958.2, AC024595.2, AC026259.3, AC025966.2, AC025818.2, AC022735.3, AC024387.2, AC022040.2,
AC023375.2, AC017402.1, AC009610.1, AL356358.1, AL355293.2, AL008872.1,

10   SEQ ID NO.144
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15   Z72006.1, AC007386.3, AC000353.27, AC005207.1, AC003002.1, AL160191.2, AL034429.1, AC004552.1, AC004195.1,
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AC003104.1, AL049569.13, AP000505.1, AP000045.1, AC011890.4, AC007225.2, AC005102.1, AL136295.2, Z85994.1,
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20   AL049795.20, AW467233.1, AA186857.1, AW572140.1, AW473996.1, AW327624.1, AI889579.1, AI049630.1,
H68343.1, AW850230.1, AI733856.1, AA135761.1, AA583386.1, AW873261.1, AW833047.1, AI754421.1, AA838091.1,
AA468923.1, AA176605.1, AW157005.1, AI452836.1, AI090377.1, AA152253.1, AI474127.1, AI192465.1, AI064786.1,
AA721645.1, AI799569.1, AI283938.1, H47736.1, AW798093.1, AI340151.1, AA992126.1, AI762528.1, AI309943.1,
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25   AW589345.1, AI859906.1, AI249365.1, AA302978.1, AW674631.1, AW516080.1, AW243808.1, AW069227.1,
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AI797998.1, AI653515.1, AA612727.1, AA218631.1, AI791659.1, AI278972.1, H57439.1, AI065038.1, N38991.1,
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30   AI962030.1, F29968.1, AI049845.1, AA287570.1, AA284247.1, AW852684.1, AA633981.1, AA443390.1, AI633294.1,
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AL158828.4, AC044797.2, AL158039.2, AF235092.1, AC024561.3, AC008379.5, AC009149.4, AL354720.3,
35   AC027472.2, AL137849.2, AC009041.5, AC011423.1, AL355076.1, AC020922.5, AC011895.3, AC026051.3,
AL161911.3, AC021016.3, AC025395.2, AC008026.2, AC008745.4, AC015920.4, AL138762.5, AP001462.1,
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SEQ ID NO.145
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AL009179.1, AW513878.1, AW440589.1, AW303749.1, AW172719.1, AW150741.1, AI942459.1, AI926534.1,
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50   AA639747.1, AI523792.1, AA758117.1, AA156353.1, N26116.1, AA811496.1, W80780.1, AI613456.1, AI559431.1,
AW189020.1, AI305239.1, AI762958.1, N51844.1, N31942.1, AI491778.1, AA113854.1, AI270445.1, AA662713.1,
AA732559.1, AI290117.1, AA641906.1, AA632756.1, AI829267.1, AA535035.1, AA612924.1, AI880822.1, N90508.1,
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55   AW503247.1, AI630929.1, AI582862.1, AC004166.10, AC061712.2, AC006995.2, AC005098.1, AC068263.1,
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60   SEQ ID NO.146
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AV335031.1, AV251198.1, AA713956.1, AV323916.1, AV351047.1, R14337.1, AW242991.1, AA296993.1, AV318231.1,
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AW163609.1, AW162962.1, AI506067.1, T86264.1, AW775546.1, AV439780.1, AW696915.1, AW693997.1,
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AI823378.1, AI816820.1, AI809563.1, AI803416.1, AV146241.1, AI770033.1, AI766212.1, AI766190.1, AI632787.1,
AI478418.1, AI280988.1, AI246187.1, AI242863.1, AI160538.1, AI143611.1, AI091619.1, AI055903.1, AI034050.1,
AI032880.1, AI015057.1, AA988532.1, AA922855.1, AA863243.1, AA811866.1, AA731602.1, AA524142.1,
AA375259.1, AA001674.1, W80645.1, W56179.1, W39715.1, W32984.1, W31210.1, R40471.1, AA524073.1,
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AF009010.1, AF039906.1, AL163262.2, Z97055.1, AL031429.11, AL096773.6, Z75151.1, AP001717.1, AP000189.1,
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AV071325.1, AI472756.1, AA586216.1, AA347968.1, AA273379.1, H84029.1, H57875.1, R90945.1, H17170.1,
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AV335031.1, AV251198.1, AV323916.1, AA713956.1, AV351047.1, AV318231.1, AA743290.1, AW496257.1,
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AV318321.1, AW057255.1, AW043594.1, AV146241.1, AI698675.1, AI698047.1, AI570113.1, AI506941.1, AI393132.1,
AI361113.1, AI246187.1, AI222232.1, AA962426.1, AA926638.1, AA837710.1, AA829497.1, C68432.1, C57364.1,
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SEQ ID NO.149
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AC005207.1, U00176.1, U67526.1, AL355921.1, AF004387.1, AL080287.1, AL050333.18, AL117353.6, AL034563.1,
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AP001109.1,

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AI408526.1, AI408307.1, AW681502.1, AW398648.1, AU061751.1, AU060420.1, AU053145.1, AU053100.1,
AA685125.1, AW682367.1, AW681399.1, AW681336.1, AW619893.1, AW553956.1, AW553928.1, AW550476.1,
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AI089674.1, AA198689.1, AA732465.1, AA766629.1, AA989985.1, H58225.1, AA970328.1, AW787078.1, AW787072.1,
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H60027.1, AA639612.1, R25924.1, AW392280.1, AW450452.1, AI014725.1, AA092495.1, W58640.1, AW022648.1,
20   AI179962.1, AW431718.1, N55875.1, AI178673.1, AW427283.1, R14767.1, AJ179961.1, AW868962.1, D21042.1,
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AC011794.4, AC009871.5, AC010966.2, AC015676.3, AC024237.3, AC018232.1, AC018272.1, AF165146.1,
AC006171.1, AC004847.1, AL356461.1, AL159154.3, AL162399.3, AL133410.10, AL162589.1, AL136001.1,
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35   SEQ ID NO.154
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40   AB010420.1, AB010419.1, AF018277.1, AB013280.1, AF052215.1, S74096.1, NM_005187.2, AF069747.1,
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AI046358.1, AA914494.1, AA822901.1, AA674424.1, AA529559.1, AA261311.1, AA222118.1, AA222011.1,
AA963424.1, W39519.1, N75171.1, R70443.1, AV170567.1, AA924939.1, AI169429.1, W89980.1, AA015563.1,
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50   AC031998.2, AC013552.4, AL158160.1, AC012485.4, AC009989.6, AC006431.8, AC021193.3, AC022029.3,
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AA992855.1, R38996.1, AV162276.1, N86959.1, AA247686.1, AV240937.1, AI078840.1, AV245662.1, F01701.1,
AI080687.1, AV347330.1, N88058.1, AA463390.1, AA095305.1, AI825475.1, H46432.1, AW450741.1, AW063104.1,

-100-

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AA469797.1, AA469776.1, AA194741.1, AA125063.1, AC015952.3, AF181450.1, AC068674.1, AC010295.4,
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SEQ ID NO.156
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AE001039.1, AC001229.1, AL133445.2, AL049766.14, AL096843.11, AL031682.1, AL008634.1, Z84466.1, AL022721.1,
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AV347330.1, AA463390.1, N88058.1, AI825475.1, AA095305.1, H46432.1, AW450741.1, AW063104.1, AI885714.1,
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AA125063.1, AC015952.3, AF181450.1, AC068674.1, AC017222.1, AC008197.2, AL096708.33, AC011005.4,
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SEQ ID NO.158
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AW702080.1, AA083888.1, AA199399.1, AA461807.1, AW860954.1, AI681138.1, C72137.1, AW836479.1,
AW416148.1, AV141668.1, AI678836.1, AI035692.1, C84814.1, AA768917.1, AA722287.1, R66162.1, R59232.1,
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SEQ ID NO.159
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MK253/T7 3'
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AA749416.1, AI972095.1, AI874853.1, AW656237.1, AW793352.1, AW793354.1, AA247961.1, AW246359.1,
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5   AW438881.1, AA729375.1, AA364111.1, AW363733.1, AW638275.1, AA538198.1, AV084911.1, AA702934.1,
AI940043.1, AW428205.1, AV008608.1, AW702080.1, AL134250.1, AI159057.1, AA711797.1, AA120508.1, T06791.1,
AV319126.1, AA739069.1, AV319605.1, AV038838.1, U94841.1, AA461807.1, AW803473.1, AI937621.1, AI673094.1,
AI105163.1, AA638281.1, AA559086.1, AA473595.1, AA331632.1, H87048.1, AC026712.3, AC008768.4, AC008159.1,
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AA797275.1, AA199399.1, AW428205.1, AA461807.1, AA711797.1, AW237908.1, AA538198.1, AA120508.1,
25   AI987530.1, AI681138.1, C72137.1, AW836479.1, AW559878.1, AW416148.1, AU039592.1, R66162.1, R59232.1,
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30   AC021242.3, AC023860.2, AC024598.2, AC021874.11, AC020856.1, AF230637.1, AC016906.3, AC015747.1,
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SEQ ID NO.161
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40   AA492926.1, AL048784.3, AW006865.1, AU051027.1, AL046120.2, AA382461.1, AW500688.1, AW637436.1,
AW701629.1, AJ396085.1, AA864027.1, AA211241.1, AI605657.1, AW635365.1, AW422773.1, AW421817.1,
AW128008.1, AI722256.1, AW629710.1, AW381192.1, AW153931.1, AI626169.1, N28924.1, AI595541.1, AI038250.1,
AI854277.1, AI787785.1, AI599584.1, W92175.1, AA428487.1, N23469.1, AW701402.1, AW462697.1, AI848239.1,
AI414590.1, AI184192.1, AA553654.1, AW149364.1, AW016345.1, AI869878.1, AI830963.1, AI808855.1, AI808450.1,
45   AI555245.1, AI248681.1, AI247996.1, AI200995.1, AI199780.1, AI127471.1, AI075315.1, AI032748.1, AI018413.1,
AI018139.1, AI000892.1, AA573426.1, AA479899.1, W92176.1, N35218.1, H98745.1, AA537749.1, AI296396.1,
W12836.1, AW668908.1, AW392218.1, AI810017.1, AA968079.1, AA062255.1, AW736509.1, AW705048.1,
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55   AL157696.2, AL009027.1,

SEQ ID NO.162
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AA490202.1, AA629288.1, AW848261.1, AA921804.1, R78142.1, AI076709.1, AW510886.1, AW275479.1,
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AA899108.1, AU024203.1, AU020306.1, N76402.1, N77083.1, AA383402.1, AW674276.1, AW275654.1, AW103361.1,

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5   AA024303.1, W36820.1, W11581.1, W08677.1, D19317.1, D24037.1, AL157823.3, AP001449.1, AL139347.2, AC026566.1, AC018197.1, AC024107.9, AC021650.9, AC008810.4, AC026466.3, AC026959.2, AC023271.3, AC024193.2, AC009792.4, AC020730.2, AC021155.2, AF178220.1, AP000794.1,

SEQ ID NO.163
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25
SEQ ID NO.164
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25   AC015623.3, AC016071.2, AC005504.3, AC004710.3, AL122035.2, AP001392.1, AP001104.1, AC069126.1,
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AC022147.4, AC009143.4, AC027548.2, AC067898.1, AC016385.3, AC025481.2, AC025928.2, AC027272.2,
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AC018879.3, AC011694.2, AL355385.4, AL109825.17, AL161911.3, AL157831.2, AL121747.21, AL109815.2,
30   AL096782.3,

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35   U13369.1, X13993.1, AA161421.1, AA214215.1, AA166833.1, AA166827.1, AA085249.1, AC025630.1, AC010554.1,
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SEQ ID NO. 187
40   NGO-Br-67
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AC004962.1, AC002981.1, AC002546.1, AC002436.1, AL050342.42, AL139074.2, U88171.1, U39654.1, AP000003.1,
45   AI752078.1, AI786904.1, AI746780.1, W49558.1, AI119026.1, W03174.1, AW630700.1, AI931647.1, AU076411.1,
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AW421789.1, AI765768.1, AW859693.1, AW531377.1, AV008918.1, AI599543.1, AA926321.1, AA818512.1,
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50   AC036131.2, AC011333.4, AC034128.2, AC009579.3, AC027374.2, AC060828.3, AC025091.3, AC067805.1,
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AC006846.1, AL355493.2, AL355498.2, AL158210.6, AL356101.1, AL353759.3, AL161740.4, AL139243.3, AL139244.2,
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SEQ ID NO.188
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U94409.1, AI124555.1, AW060335.1, AA647911.1, W83246.1, AW732245.1, AW590218.1, AW340426.1, AI989500.1,
AI983119.1, AI808699.1, AI654406.1, AI653050.1, AI650974.1, AI638614.1, AI637922.1, AA977540.1, AW626159.1,
AW622831.1, AW622685.1, AJ397298.1, AW504867.1, AW399321.1, AW405716.1, AW096606.1, AW094388.1,
AW094030.1, AI912988.1, AI886821.1, AI823876.1, AI782590.1, AI780656.1, AI775035.1, AI771616.1, AI695784.1,

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AI539054.1, AI488077.1, AI486997.1, AI435874.1, AI391305.1, AI382942.1, AI288287.1, AI277512.1, D89319.1,
AA824970.1, AA824942.1, C23550.1, AA243659.1, AA131248.1, AA130548.1, C01658.1, W18282.1, L44352.1,
D51291.1, R51070.1, T23439.1, AL139226.14, AC010751.3, AC010688.4, AC014935.1, AC010690.1, AC023065.3,
AC021858.2, AL158835.3, AL133230.20, AL353653.5, AL139330.5, AL135907.3, AL353609.2, AC069242.1,
5   AC025177.3, AC025531.2, AC011432.2, AC012277.2, AC023303.2, AL157888.2, AL139237.4,

SEQ ID NO.189
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AJ004834.1, AL009174.1, AP001759.1, AP001101.1, X75910.1, NM_000449.1, AF257304.1, AF257303.1, AC006533.7,
AF206287.1, NM_009307.1, AC007463.3, AE001862.1, AF092918.1, AC003689.1, AC004134.1, AF020554.1,
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15   M86250.1, D37793.1, L03208.1, D43752.1, Z92952.1, D85027.1, AL037087.2, AI872306.1, AI811998.1, AI401068.1,
AA613882.1, AI687495.1, AI224019.1, AA970425.1, AW083819.1, AA595119.1, AW084657.1, AI817733.1, AI419425.1,
AI240622.1, R87989.1, AI204529.1, AI000880.1, AA848087.1, Z40915.1, AA502324.1, AW078517.1, AI699218.1,
AA729465.1, T85911.1, R88035.1, AW504249.1, AW133062.1, AW435751.1, AW346610.1, AI534994.1, AI534415.1,
AI530805.1, AI519460.1, AI512712.1, AI456969.1, AI455689.1, AI404669.1, AI388686.1, AI388197.1, AI388073.1,
20   AI387697.1, AI387259.1, AI386601.1, AI192646.1, AI135562.1, AI135091.1, AI107565.1, AI063523.1, AI063307.1,
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AI340266.1, AI032053.1, AI024499.1, AA991616.1, AA937835.1, AA889325.1, AA872357.1, AA812821.1, AA805252.1,
AA746136.1, AA722399.1, AA660763.1, AA586676.1, AA532648.1, AA527348.1, AA523469.1, AA504479.1,
25   AA417368.1, AA405813.1, AA262932.1, AA228934.1, AA055130.1, N30852.1, H94195.1, D63281.1, R72540.1,
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AE002153.1, AC004830.1, AC004738.1, Z78419.1, AL034397.1, X63598.1, L14017.1, Y13096.1, Y13095.1, X54660.1,
Y14051.1, D86934.1, AB033763.2, L14020.1, AL046916.1, AW732487.1, AA088822.1, H50443.1, T65364.1,
AA112796.1, F11994.1, R11879.1, AW414271.1, AW414220.1, AA075824.1, AA363903.1, AW786911.1, AA896188.1,
AW403711.1, H19785.1, AI197257.1, T65515.1, AW401567.1, AL047058.1, R55598.1, AW143393.1, AW375060.1,
40   AI591958.1, F11904.1, AA742633.1, AA517314.1, W85360.1, T08516.1, AA184178.1, D28616.1, AA000364.1,
AW796180.1, AW401580.1, T16871.1, AA739011.1, AI153477.1, W21846.1, AW785749.1, AA053446.1, D21680.1,
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AA895817.1, AW546958.1, AW575180.1, AW640041.1, AW555199.1, AJ397620.1, AA018126.1, AJ397023.1, R09436.1,
AW522370.1, AJ395743.1, AJ392332.1, AW269432.1, AW169948.1, AI914378.1, AL046089.1, AV106169.1,
45   AI371352.1, AA922035.1, AA707531.1, N91137.1, R45445.1, AW815118.1, AW163019.1, AI522333.1, AA965117.1,
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AC015900.2, AC009637.3, AC025221.2, AC025565.2, AC019141.3, AC018421.3, AC021603.2, AC023380.1,
50   AC022390.1, AL356215.1, AL355972.2, AL139276.2, AL136989.4, AL161742.3, AL353713.1, AL158204.2, AL158143.1,
AL137845.1,

SEQ ID NO.191
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AC004601.1, AL133451.1, AL050347.1, X55146.1, Z73987.1, AW471383.1, AW294879.1, AI827389.1, AI433239.1,
AW575180.1, AW574507.1, AI936491.1, AI803377.1, AW575276.1, AW574501.1, AW574595.1, AW081903.1,
AI017541.1, AW575023.1, AW474843.1, AW269983.1, AI143057.1, AW662466.1, AW149715.1, AI818173.1,
60   AW027629.1, AI129967.1, AI084109.1, AA629401.1, AI032340.1, AA775878.1, AI734859.1, AI688609.1, AA134114.1,
AA088684.1, AI537873.1, AW474193.1, AA709474.1, AW087318.1, AA052969.1, T17399.1, AW244157.1, AI198524.1,
AA455953.1, AA662286.1, T65434.1, N23103.1, AI500354.1, T77285.1, R48306.1, T87060.1, AW079744.1, T16870.1,
AA242771.1, AA364661.1, AA725410.1, AA888835.1, AW183474.1, R48408.1, R55361.1, AI952437.1, AI383126.1,
AA772585.1, R17756.1, R53154.1, AI468078.1, T83615.1, AA740428.1, AA989632.1, AA776777.1, AW088969.1,

AA970686.1, AW467672.1, F09551.1, R84473.1, AA053446.1, AW839837.1, AW801635.1, R40543.1, AA242901.1, AW375060.1, W21846.1, AW295371.1, AA485133.1, AA281393.1, AW834883.1, AW426950.1, AW335961.1, AI953843.1, AI935134.1, AI817633.1, AI808163.1, AA924764.1, AI370430.1, AA232269.1, AA224090.1, AP001028.3, AC003094.1, AC025920.8, AC024162.2, AC021006.3, AC020773.3, AC026197.1, AC026181.1, AC020755.2,
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MK464/T3 5'
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SEQ ID NO.194
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MK464/T7 3'
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5   SEQ ID NO.195
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45   AL161572.2, Z68136.2, AL049662.1, AL121783.1, S46763.1, AL021749.1, AL034558.2, U45981.1, Z70720.1, Z73565.1,
     Z29667.1, L34028.1, L34027.1, D10606.1, AB011474.1, AB026649.1, M84660.1, M74445.1, U07163.1, H53674.1,
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     AI960995.1, AI920205.1, C95693.1, AI594372.1, AA592233.1, H36649.1, T92029.1, T18143.1, AC016143.5,
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40   T11529.1, AV245244.1, AV229602.1, AU030011.1, AW575669.1, AW557886.1, AW529718.1, AW212594.1,
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10   AA371572.1, AA313662.1, AA299963.1, AA148581.1, AA135264.1, AW774261.1, AW609685.1, AW300461.1,
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25   AK001746.1, M27543.1, AB014467.1, J03198.1, AA765066.1, R57163.1, AW105563.1, C80989.1, C80990.1, C81381.1,
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AA135264.1, AV211122.1, AI829193.1, AV172729.1, AI766084.1, AI620180.1, AI400167.1, AI397692.1, AI356812.1,
30   AI337030.1, AI269102.1, AI261301.1, AI092059.1, AI033551.1, AI033398.1, AA954839.1, AA838238.1, AA766120.1,
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35

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45   AA474203.1, AA402070.1, AA199109.1, AA053059.1, R82169.1, R23708.1, AC063960.2, AC012053.2, AC020661.4,
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AA428312.1, AA305564.1, D78836.1, Z45190.1, AC063960.2, AC006447.17, AC011085.4, AC023285.2, AP001027.1,
AL355358.1, AC025684.2, AC021877.4, AC011243.3, AL160291.2, AC006404.20, AC015424.1, AC019870.1,
60   AC020079.1, AC007835.5, AC010565.3, AC010690.1, AC068007.1, AC062025.1, AC009578.3, AC023820.2,
AC015567.3, AL109965.22, AL132671.19, AC069237.1, AC044882.2, AC068593.1, AC064847.1, AC023136.3,
AC021555.3, AC026242.3, AC013685.3, AC016808.2, AC017040.3, AC013278.1, AP002000.1, AP001931.1,

SEQ ID NO.205

NGO-Br-76
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AF116571.1, NM_006941.1, NM_005686.1, AF149301.1, AC007461.8, AF006501.4, AF098915.1, AF083105.1,
5   AF029696.1, AL031587.3, S74504.1, Z46629.1, AJ001183.1, L29086.1, U08223.2, NM_007084.1, NM_009238.1,
NM_009233.1, NM_009234.1, NM_005986.1, AF107044.1, AF061784.1, AF009414.1, AL163672.1, AX001335.1,
AX001334.1, U12533.1, AJ004858.1, X96997.1, X70298.1, X94126.1, AB014474.1, D61688.1, M90534.1, D83649.1,
AB012236.1, Y13436.1, AA764352.1, AW321606.1, AL043036.2, AL120408.1, AA172336.1, AW533152.1,
AW532037.1, AW532030.1, AW529354.1, AW414006.1, AW251615.1, AW060475.1, AI884987.1, AI816765.1,
10   AV116901.1, AJ600115.1, AI594348.1, AI569726.1, AA965274.1, AI416080.1, AI406268.1, AI327463.1, AI176078.1,
AI137787.1, AA734962.1, AA616534.1, AA521730.1, AA040785.1, AW822773.1, AW506135.1, AW417535.1,
AW046996.1, AW015864.1, AI566947.1, AI552551.1, AI359981.1, AL355803.2, AC024914.17, AL137061.2,

SEQ ID NO. 206
15   NGO-St-114 5' combined;
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AF146393.1, AC004058.1, U32788.1, AC004056.1, AL355094.2, AJ131018.1, Z97180.1, AP001821.1, AC005825.3,
AC006804.3, AE003778.1, AE003576.1, AE003510.1, AF136829.1, AF081203.1, AC004992.1, AF195611.1, AF195610.1,
20   AC006961.16, AC006581.16, AC005414.2, U68299.1, AF016687.1, U23527.1, L78833.1, U18349.1, AC004267.1,
AF047659.1, U09744.1, AL117206.1, AL137080.2, Z81467.1, Z81028.1, Z82180.19, Z77652.2, Z75892.1, AL050305.9,
Z77249.1, Z97629.1, AJ250862.1, U55366.1, X06535.1, U40028.1, AP001331.1, AP001111.1, AB029433.1, AB003324.1,
D00170.1, Y17816.1, AU077198.1, AW673639.1, AA315968.1, AW029214.1, AA622246.1, D59188.1, AI904582.1,
AW877796.1, AA595371.1, AA278660.1, AW877790.1, AA894917.1, AA252724.1, AA328618.1, AW402842.1,
25   AW362899.1, H14854.1, AW394189.1, AA312894.1, AW365030.1, T72766.1, AW582369.1, T65190.1, T52076.1,
AW609538.1, AW366774.1, AA372836.1, AW380678.1, AA460590.1, F11914.1, AA383821.1, T47333.1, AA336307.1,
AW403760.1, AA337398.1, AI951709.1, T34968.1, AA346865.1, AL119477.1, AW816164.1, AA348197.1, AA619797.1,
T05543.1, AI158644.1, T83104.1, C03576.1, C03455.1, T86869.1, AV121343.1, AA572579.1, AA095559.1, AA517694.1,
AA920998.1, AV205440.1, AA763469.1, AV212370.1, AI117791.1, AV213552.1, AV212700.1, C89279.1, H21207.1,
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AA182987.1, W26005.1, AW645787.1, AW638295.1, AW199696.1, R52386.1, AW563125.1, AW563124.1, AW506736.1,
AW506735.1, AW506714.1, AW506713.1, AW433456.1, AW330840.1, AW056105.1, AI987345.1, AW728753.1,
AI519245.1, AI511851.1, AI456317.1, AI455940.1, AA264246.1, AI756661.1, AI755675.1, AC008579.2, AC020971.1,
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35   AC021271.4, AC025944.3, AC025945.2, AC026220.2, AC007186.8, AC019704.1, AC015613.1, AC007913.1,
AL158151.5, AL157888.2, AL136135.2, AL133263.2, Z98857.36, AC026124.3, AC027751.2, AC026384.2, AC024050.6,
AC019207.3, AC020725.3, AC019835.1, AC014673.1, AC008189.2, AL109836.17, AP001894.1, AP001863.1,
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40   SEQ ID NO.207
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45   AC005414.2, AF016687.1, L78833.1, AC004267.1, AF047659.1, Z81028.1, U55366.1, U40028.1, AW029214.1,
AU077198.1, AW877796.1, AW877790.1, AA595371.1, AA252724.1, AA894917.1, AA622246.1, AA312894.1,
AA328618.1, AA460590.1, AW403760.1, T47333.1, AI904582.1, T72766.1, AA278660.1, AA372836.1, F11914.1,
T34968.1, T65190.1, AW673639.1, H14854.1, T05543.1, AA383821.1, AI158644.1, AA315968.1, AA572579.1,
AW402842.1, AA517694.1, AW362899.1, AW582369.1, AV121343.1, AA920998.1, AW816164.1, AW394189.1,
50   AV205440.1, C89279.1, AV213552.1, AV212370.1, AW609538.1, AV212700.1, AW365030.1, AA619797.1,
AW380678.1, C03576.1, AV216550.1, AV100198.1, AI722257.1, AA182987.1, AV218081.1, AV214781.1, AL119477.1,
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AI455940.1, AA264246.1, AI471179.1, AW375040.1, AW375037.1, AW021363.1, AI976597.1, AV049065.1, C54464.1,
C54153.1, C51985.1, AA426143.1, AA406093.1, C11684.1, R74232.1, D27736.1, AC008579.2, AC020971.1,
55   AC025193.1, AC020907.3, AC007186.8, AC019704.1, AL136135.2, AL133263.2, Z98857.36, AC026124.3, AP001863.1,
AC068193.4, AC036188.2, AC024947.2, AC025766.3, AC010623.3, AC016558.3, AC008534.3, AC036127.2,
AC068579.1, AC009142.4, AC011724.2, AC024698.4, AC022198.2, AC021719.3, AC022788.2, AC010764.3,
AC009695.4, AC025532.2, AC021157.3, AC016890.4, AC022273.2, AC016685.4, AC011266.3, AC023349.2,
AC018492.3, AC012101.3, AC024158.1, AC012448.3, AC010741.3, AC012387.4, AC017805.1, AC014787.1,
60   AC006937.5, AC006905.1, AL356435.1, AL109955.13, AL135939.9, AL133542.3, AL161790.3, AL162418.2,
AL159176.3, AP001993.1,

SEQ ID NO. 208
NGO-St-114

YS071/T7 3'
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AF042091.1, AL163282.2, AL117191.4, AL121716.16, AL161585.2, AL121754.18, AL008723.8, AL021182.1,
AL031429.11, AL035593.11, AL023094.2, U37796.1, X04112.1, X15215.1, AI052691.1, AI346408.1, AW304965.1,
AI709369.1, AW190867.1, AW192823.1, AI818211.1, AI434577.1, AW264130.1, AA613880.1, AA507377.1,
AA417113.1, AI675129.1, AI371764.1, AI285611.1, AI125952.1, AW069225.1, AI376092.1, W65333.1, AI804531.1,
10 AI366201.1, AI940448.1, AW860175.1, AW604918.1, AA461518.1, AA063580.1, AA825152.1, AA604623.1,
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AI090392.1, AI356847.1, AW607519.1, AA975911.1, AA037065.1, AA838760.1, AW089083.1, AA635906.1,
AA824551.1, AA602587.1, AW265444.1, AA188912.1, T90567.1, AW519252.1, AW150510.1, R73733.1, AA508614.1,
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15 AA412648.1, H84875.1, AW614384.1, F09561.1, AA326994.1, AA037079.1, AA380870.1, R30839.1, AI287373.1,
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AA894943.1, AA876963.1, AI431981.1, AA585211.1, AI216614.1, AA381394.1, AA278612.1, AA585402.1,
AW463162.1, D80075.1, R52386.1, AA036649.1, AA671025.1, AA369696.1, AW057744.1, T86869.1, AA794137.1,
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20 AC013328.5, AC007819.7, AC009807.3, AC016991.2, AC009345.6, AC008043.3, AC018408.1, AC017738.1,
AC018228.1, AL138817.5, AL356212.1, AL133518.3, AL136980.3, AL139294.1, AL031011.20, AP000708.1, Z82169.1,
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SEQ ID NO.209
25 NGO-St-114
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AA312894.1, AW366774.1, AA336307.1, AA337398.1, AI951709.1, AA460590.1, AL119477.1, AA348197.1, T86869.1,
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35 AI987345.1, AI519245.1, AI511851.1, AI456317.1, AI455940.1, AA264246.1, AW649858.1, AW622907.1, AW217541.1,
AW217534.1, AI239260.1, C93674.1, AW787238.1, AW787237.1, AW597401.1, AW565183.1, AW352495.1,
AW331243.1, AW286148.1, AI668513.2, AW021363.1, AI976597.1, AI966918.1, AI966929.1, AI964567.1, AV155610.1,
AI756661.1, AI755675.1, AV049065.1, AI746131.1, AI711682.1, AI677124.1, AI667849.1, AI665080.1, AI637127.1,
AI549172.1, AI461446.1, AI461444.1, AA979929.1, AA979727.1, C72737.1, AA426143.1, AA406093.1, AA123407.1,
40 C19565.1, R74232.1, T18355.1, AC008579.2, AC021705.4, AC007186.8, AC019704.1, AC007913.1, AL158151.5,
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45 AC016685.4, AC018862.3, AC018994.3, AC012109.2, AC010741.3, AC012726.1, AC017805.1, AC014787.1,
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AL354674.2, AL161790.3, AL159176.3, AL157770.2, AP001993.1, AP001806.1, AP001457.1, AP000881.1, AP000826.1,
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50 SEQ ID NO.210
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AW512466.1, AW304965.1, AW264130.1, AI376092.1, AI274749.1, AI090392.1, AI052691.1, AA824551.1,
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60 AW069225.1, AA037065.1, AI675129.1, AI285611.1, AI278875.1, AI125952.1, AA975911.1, AA613880.1, AA602587.1,
AA461518.1, W15503.1, AW089083.1, AW190867.1, T90567.1, W56065.1, AW265444.1, AI356847.1, T86870.1,
AA838760.1, AI818211.1, AI366201.1, AA417113.1, AW192823.1, AI709369.1, AW150510.1, AA508614.1,
AA886319.1, AA577447.1, AW607519.1, AA380499.1, AA854628.1, H84875.1, AA508722.1, AW614384.1, F09561.1,
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SEQ ID NO.211
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Z82180.19, Z77652.2, Z75892.1, AL050305.9, Z97629.1, U55366.1, U40028.1, AW029214.1, AA622246.1, AI904582.1,
AW877796.1, AA595371.1, AW877790.1, AA278660.1, AA894917.1, AA252724.1, AA328618.1, AW402842.1,
20 AW362899.1, H14854.1, T72766.1, AW394189.1, T65190.1, AW365030.1, AA372836.1, AW582369.1, F11914.1,
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AW816164.1, AA346865.1, AA619797.1, T05543.1, AI158644.1, AV121343.1, AA572579.1, C03576.1, AA517694.1,
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40   AI239260.1, C93674.1, AW787238.1, AW787237.1, AW597401.1, AW565183.1, AW352495.1, AW331243.1,
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SEQ ID NO. 219
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YS191/T7 3'

-121-

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45 SEQ ID NO.227
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CARELLA, BYRNE, BAIN, GILFILLAN, CECCHI, STEWART & OLSTEIN, P.C.

COUNSELLORS-AT LAW

5 BECKER FARM ROAD

CHARLES C. CARELLA   JAMES T. BYERS   RICHARD K. MATANLE, II   RAYMOND J. LILLIE
BRENDAN T. BYRNE   DONALD F. MICELI   FRANCIS C. HAND   WILLIAM SQUIRE
JOHN N. BAIN   A. RICHARD ROSS   AVRAM S. EULE   ALAN J. GRANT°
PETER G. STEWART   KENNETH L. WINTERS   RAYMOND W. FISHER   MARC D. MICELI
ELLIOT M. OLSTEIN   JEFFREY A. COOPER   DAVID J. REICH   RAYMOND E. STAUFFER°
ARTHUR T. VANDERBILT   CARL R. WOODWARD, III
JAN ALAN BRODY   OF COUNSEL   STANLEY J. YELLIN
JOHN M. AGNELLO   STEPHEN R. DANEK
CHARLES M. CARELLA   ERIC MAGNELLI
JAMES E. CECCHI   DONALD A. ECKLUND
                                                °MEMBER N.Y. BAR ONLY

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CARELLA, BYRNE, BAIN, GILFILLAN, CECCHI, STEWART & OLSTEIN, P.C.

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5 BECKER FARM ROAD

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JAN ALAN BRODY
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SEQ ID NO.239

NGO-St-116

YS1731/T7 3'

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YS1784/T7 3'

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60   AW193663.1, AI298467.1, AI168222.1, AI148323.1, AI140814.1, AI089322.1, AA879456.1, AA843811.1, AA829894.1,
AA102109.1, AA029201.1, W72147.1, N51485.1, AI808317.1, AI033069.1, AA161465.1, AA812519.1, N64528.1,
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     AA928053.1, AW674657.1, AI364000.1, AA305698.1, AW674987.1, AW087890.1, AW673412.1, AI202011.1, N59764.1,
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     AV270362.1, AV256037.1, AV374021.1, AV312541.1, AV366822.1, AV352771.1, AV299835.1, AV261104.1,
     AV337229.1, AV254627.1, AV257886.1, AV252321.1, AV261234.1, AV255806.1, AV380586.1, AV281906.1,
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     AF016678.1, Z93778.1, Z30215.1, AC002109.1, AL078621.19, AL050399.1, U42844.1, AC000120.1, Z94044.1,
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     AI916149.1, AA213076.1, AI795876.1, AA123206.1, AA561308.1, AA561307.1, AA561305.1, AW392852.1,
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     AA535069.1, AI378367.1, AA879433.1, AA971454.1, AI394371.1, AI564549.1, AA928053.1, AI431285.1, AW553616.1,
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50   AI537958.1, AI767492.1, AI654090.1, AA620412.1, AA861190.1, AI659277.1, AA822328.1, AI790656.1, AI528811.1,
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55   SEQ ID NO. 285
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SEQ ID NO.286
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15   X71844.1, AP001687.1, AP000459.3, AL043535.1, AA781358.1, AI692447.1, N32153.1, AI453034.1, AI813894.1,
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20   AA748186.1, T28758.1, H13536.1, AA644498.1, AW769677.1, AI472645.1, AA385221.1, AI472603.1, AW188171.1,
W17317.1, H13535.1, AA585349.1, R59914.1, AA300847.1, AA251517.1, F03176.1, AW050401.1, AA485087.1,
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25   AA505330.1, AA287832.1, AA287578.1, D48726.1, AC048367.2, AC055751.2, AC020941.3, AC017093.2, AC025170.3,
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35   Z35601.1, AL133299.2, AL096802.11, U29156.1, AB027020.1, AI936583.1, AA837424.1, AW340591.1, AA832056.1,
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40   AC040919.1, AC046143.3, AC009078.4, AC021477.3, AL136170.3, AL139022.1, AP001845.1, AC037471.3,
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AI208237.1, AW169456.1, AI275885.1, AW769406.1, AI693511.1, AA886343.1, AA150461.1, N49086.1, AA825660.1,
55   AW075886.1, AA813360.1, AW614630.1, AI520942.1, AA534862.1, Z44586.1, AA164418.1, AA702296.1, AI920898.1,
AA485200.1, N66885.1, AW087764.1, N78949.1, R68155.1, N25787.1, R62156.1, T10010.1, AA478744.1, AI810955.1,
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R59914.1, AA585349.1, AA300847.1, AA251517.1, AA485087.1, AW050401.1, F03176.1, AI267611.1, AW188171.1,
W17317.1, H13535.1, AW813048.1, AW366454.1, T25018.1, D19928.1, AA251530.1, X85627.1, AI060900.1,
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10   AA474115.1, AA718262.1, AI593159.1, AA657201.1, AA615519.1, AI331130.1, R17242.1, AW437322.1, AW654277.1,
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SEQ ID NO.290
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AA290618.1, AW136798.1, AW195082.1, AI566119.1, AI866810.1, AI307663.1, AI417845.1, AW242353.1, AI479172.1,
AI311003.1, AI522054.1, AI952372.1, R99633.1, AI249792.1, AI366767.1, AW469603.1, AA854194.1, AA582699.1,
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T17377.1, AA291006.1, T32600.1, AA291005.1, AW902806.1, AI142264.1, W22495.1, T20064.1, AW898163.1,
25   AW251506.1, AA998450.1, AI072764.1, AI851526.1, AI787438.1, AI465290.1, AA967834.1, AA718676.1, AA039087.1,
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D80314.1, D80261.1, D80254.1, D80253.1, D80252.1, D80251.1, D59773.1, D59717.1, AI705776.1, AV175623.1,
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45   SEQ ID NO.292
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55   AI851526.1, AI787438.1, AI465290.1, AA967834.1, AA039087.1, AA511363.1, AV252009.1, AV272145.1, AI705776.1,
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5   AW672276.1, AW672019.1, AW665912.1, AW471059.1, AW384568.1, AW384558.1, AW384516.1, AW384461.1,
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10   AA688139.1, AA634800.1, AA630304.1, AA592961.1, AA472666.1, AA449553.1, AA449122.1, AA443810.1,
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20   U70441.1, NM_011441.1, D49474.1, D49473.1, L29085.1, NM_005986.1, AX001335.1, Y13436.1, NM_007084.1,
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25   AJ004858.1, M86315.1, AB026622.1, AE003776.1, AJ251580.1, AJ001730.1, NM_011446.1, NM_009237.1, U12467.1,
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55   U39674.1, AP001313.1, Z20656.1, AP000367.1, AP000371.1, AW005563.1, AA576678.1, AI934455.1, AI382146.1,
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35   ## Table 2: Relation between nucleotide sequences and polypeptide sequences

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7	783	205	827, 828, 829	403	1121
8	767	206	830, 831	404	1122
9	604	207	832	405	1123
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11	606	209	834, 835	407	–
12	624	210	836, 837	408	–
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65	635	263	924, 925, 926	461	1173, 1174, 1175
66	--	264	927, 928, 929	462	1176, 1177
67	636	265	930, 931	463	1178
68	--	266	932	464	1179
69	637	267	933, 934	465	1180
70	--	268	935	466	1181, 1182, 1183
71	--	269	936	467	1184
72	--	270	937, 938	468	1185
73	--	271	939	469	1186
74	--	272	940	470	1187
75	--	273	941, 942	471	1188
76	--	274	943, 944	472	--
77	638	275	945	473	1189
78	--	276	946, 947, 948	474	1190
79	--	277	949	475	--
80	--	278	950, 951, 952	476	1191, 1192
81	639	279	953, 954	477	1193
82	--	280	955, 956	478	1194
83	640	281	--	479	1195
84	641	282	957	480	1196
85	--	283	958	481	1197
86	642	284	959	482	1198
87	--	285	960, 961	483	1199
88	643	286	--	484	1200, 1201
89	--	287	962, 963, 964	485	1202
90	644	288	965	486	1203
91	--	289	966	487	1204
92	645	290	967, 968, 969, 970	488	1205
93	646	291	971, 972, 973, 974	489	1206
94	647	292	975, 976	490	1207
95	648	293	977, 978, 979,	491	1208

				980	
96	649, 650	294	981, 982, 983	492	1209
97	651, 652	295	984, 985	493	1210
98	653	296	986, 987	494	--
99	654	297	988, 989	495	1211
100	655	298	990	496	1212
101	656	299	991	497	1213
102	657	300	992	498	--
103	658	301	993	499	1214
104	659, 660	302	994	500	--
105	661	303	995	501	1215
106	662, 663	304	996	502	1216
107	664	305	997	503	1217
108	666	306	998	504	1218
109	667	307	999	505	1219
110	--	308	1000, 1001	506	1220
111	668, 669, 670	309	1002, 1003	507	1221
112	671, 672, 673, 674, 675	310	1004, 1005	508	1222
113	676	311	1006, 1007, 1008	509	--
114	677	312	1009, 1010	510	1223
115	680	313	1011, 1012, 1013	511	1224
116	681	314	1014, 1015	512	1225
117	682, 683	315	1016, 1017	513	1226
118	684	316	1018, 1019	514	1227
119	685	317	1020	515	1228
120	686	318	1021	516	1229, 1230
121	687, 688	319	1022	517	1231
122	689, 690, 691	320	1023	518	--
123	692	321	1024, 1025, 1026	519	1232
124	693, 694	322	1027, 1028, 1029, 1030	520	1233
125	695	323	1031, 1032, 1033	521	1234
126	696	324	1034, 1035, 1036	522	1235
127	697	325	1037, 1038	523	--
128	698	326	1039, 1040	524	1236
129	699	327	1041, 1042, 1043, 1044	525	--
130	700, 701, 702	328	1045, 1046	526	1237
131	703, 704	329	1047	527	--
132	705	330	1048, 1049	528	1238
133	706, 707	331	1050	529	1239

134	708	332	1051, 1052	530	1240, 1241
135	709, 710	333	1053	531	1242, 1243, 1244
136	711	334	1054, 1055	532	1245
137	712	335	1056	533	1246, 1247
138	713	336	1057, 1058	534	--
139	714	337	1059	535	1248
140	715	338	1060, 1061	536	1249, 1250, 1251
141	716	339	1062	537	1252, 1253, 1254
142	717	340	1063	538	--
143	718	341	1064, 1065	539	1255
144	719	342	1066	540	1256
145	720	343	1067, 1068	541	1257
146	721	344	1069	542	1258
147	722	345	1070, 1071	543	1259, 1260
148	723, 724	346	1072	544	1261
149	725, 726	347	1073, 1074	545	1262
150	727	348	1075, 1076	546	1263
151	728, 729	349	1077, 1078, 1079	547	1264
152	730, 731	350	1080	548	1265, 1266
153	732, 733	351	1081	549	1267
154	734, 735, 736	352	1082, 1083	550	--
155	737	353	1084	551	1268
156	738	354	1085	552	1269, 1270
157	739, 740	355	--	553	1271, 1272
158	741	356	1086	554	1273, 1274
159	742, 743, 744	357	--	555	1275
160	745	358	1087	556	1276
161	746	359	1088	557	1277
162	747, 748	360	1089	558	1278
163	749	361	1090	559	1279
164	750	362	1091	560	1280
165	751, 752	363	--	561	1281
166	753	364	1092	562	1282, 1283
167	754, 755, 756	365	--	563	1284, 1285
168	757, 758, 759, 760	366	1093	564	1286, 1287
169	766	367	1094	565	1288, 1289, 1290
170	768	368	1095	566	1291, 1292
171	769	369	1096	567	1293, 1294
172	770	370	1097	568	1295
173	771	371	--	569	1296, 1297, 1298
174	772	372	--	570	1299

175	773, 774, 775	373	1098	571	1300
176	784	374	1099	572	1301
177	785	375	--	573	1302, 1303
178	786, 787, 788	376	1100	574	1304
179	--	377	1101	575	--
180	789	378	1102	576	1305, 1306
181	790	379	1103	577	1307
182	791	380	1104	578	1308
183	792, 793	381	1105	579	1309
184	794	382	1106	580	1310
185	795, 796	383	1107	581	1311, 1312, 1313
186	797, 798, 799, 800	384	1108	582	1314, 1315, 1316
187	801	385	--	583	1317, 1318
188	804, 805	386	1109	584	1319
189	806	387	1110	585	1320, 1321
190	807	388	1111	586	1322
191	808, 809	389	--	587	1323, 1324
192	810	390	1112	588	1325
193	811	391	--	589	1326
194	812	392	1113	590	1327
195	813	393	1114	591	1328, 1329
196	814	394	1115	592	1330, 1331
197	815	395	--	593	1332
198	816, 817	396	1116		

Example 2: Preparation of recombinant cancer associated antigens

To facilitate screening of patients' sera for antibodies reactive with cancer associated antigens, for example by ELISA, recombinant proteins are prepared according to standard

5   procedures. Where gaps exist in the gene sequences represented by the clones disclosed herein, or where flanking sequences are desired, such nucleic acid sequences can be isolated according to standard procedures. For example, where 5' and 3' clones of a gene sequence are known, PCR primers can be designed for amplification of the nucleotide sequence between the clones. Flanking sequences can be isolated using procedures such as RACE PCR. Such

10   sequences also can be isolated by standard hybridization cloning protocols.

In one method of preparing recombinant cancer associated antigens, the clones encoding cancer associated antigens are subcloned into a baculovirus expression vector, and the recombinant expression vectors are introduced into appropriate insect cells.

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Baculovirus/insect cloning systems are preferred because post-translational modifications are carried out in the insect cells. Another preferred eukaryotic system is the *Drosophila* Expression System from Invitrogen. Clones which express high amounts of the recombinant protein are selected and used to produce the recombinant proteins. The recombinant proteins are tested for antibody recognition using serum from the patient which was used to isolated the particular clone, or in the case of cancer associated antigens recognized by allogeneic sera, by the sera from any of the patients used to isolate the clones or sera which recognize the clones' gene products.

Alternatively, the cancer associated antigen clones are inserted into a prokaryotic expression vector for production of recombinant proteins in bacteria. Other systems, including yeast expression systems and mammalian cell culture systems also can be used.

Example 3: Preparation of antibodies to cancer associated antigens

The recombinant cancer associated antigens produced as in Example 2 above are used to generate polyclonal antisera and monoclonal antibodies according to standard procedures. The antisera and antibodies so produced are tested for correct recognition of the cancer associated antigens by using the antisera/antibodies in assays of cell extracts of patients known to express the particular cancer associated antigen (e.g. an ELISA assay). These antibodies can be used for experimental purposes (e.g. localization of the cancer associated antigens, immunoprecipitations, Western blots, etc.) as well as diagnostic purposes (e.g., testing extracts of tissue biopsies, testing for the presence of cancer associated antigens).

Example 4: Expression of breast, gastric and prostate cancer associated antigens in cancers of similar and different origin.

The expression of one or more of the breast, gastric and/or prostate cancer associated antigens is tested in a range of tumor samples to determine which, if any, other malignancies should be diagnosed and/or treated by the methods described herein. Tumor cell lines and tumor samples are tested for cancer associated antigen expression, preferably by RT-PCR according to standard procedures. Northern blots also are used to test the expression of the cancer associated antigens. Antibody based assays, such as ELISA and western blot, also can be used to determine protein expression. A preferred method of testing expression of cancer associated antigens (in other cancers and in additional same type cancer patients) is allogeneic

serotyping using a modified SEREX protocol (as described above).

In all of the foregoing, extracts from the tumors of patients who provided sera for the initial isolation of the cancer associated antigens are used as positive controls. The cells containing recombinant expression vectors described in the Examples above also can be used

5   as positive controls.

The results generated from the foregoing experiments provide panels of multiple cancer associated nucleic acids and/or polypeptides for use in diagnostic (e.g. determining the existence of cancer, determining the prognosis of a patient undergoing therapy, etc.) and therapeutic methods (e.g., vaccine composition, etc.).

10

Example 5: HLA typing of patients positive for cancer associated antigen

To determine which HLA molecules present peptides derived from the cancer associated antigens, cells of the patients which express the breast and/or gastric cancer associated antigens are HLA typed. Peripheral blood lymphocytes are taken from the patient

15   and typed for HLA class I or class II, as well as for the particular subtype of class I or class II. Tumor biopsy samples also can be used for typing. HLA typing can be carried out by any of the standard methods in the art of clinical immunology, such as by recognition by specific monoclonal antibodies, or by HLA allele-specific PCR (e.g. as described in WO97/31126).

20   **Example 6: Characterization of cancer associated antigen peptides presented by MHC class I and class II molecules.**

Antigens which provoke an antibody response in a subject may also provoke a cell-mediated immune response. Cells process proteins into peptides for presentation on MHC class I or class II molecules on the cell surface for immune surveillance. Peptides presented

25   by certain MHC/HLA molecules generally conform to motifs. These motifs are known in some cases, and can be used to screen the breast and/or gastric cancer associated antigens for the presence of potential class I and/or class II peptides. Summaries of class I and class II motifs have been published (e.g., Rammensee et al., *Immunogenetics* 41:178-228, 1995). Based on the results of experiments such as those described above, the HLA types which

30   present the individual breast cancer associated antigens are known. Motifs of peptides presented by these HLA molecules thus are preferentially searched.

One also can search for class I and class II motifs using computer algorithms. For

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example, computer programs for predicting potential CTL epitopes based on known class I motifs has been described (*see, e.g.,* Parker et al, *J. Immunol.* 152:163, 1994; D'Amaro et al., *Human Immunol.* 43:13-18, 1995; Drijfhout et al., *Human Immunol.* 43:1-12, 1995). HLA binding predictions can conveniently be made using an algorithm available via the Internet on the National Institutes of Health World Wide Web site at URL http://bimas.dcrt.nih.gov. Methods for determining HLA class II peptides and making substitutions thereto are also known (see, e.g. International applications PCT/US96/03182 and PCT/US98/01373). Computer software for selecting HLA class II binding peptides is also available (TEPITOPE; Sturniolo et al., *Nature Biotechnol.* 17:555-561, 1999; Manici et al., *J. Exp. Med.* 189:871-876, 1999). Peptides which are thus selected can be for inducing specific CD4$^+$ lymphocytes and identification of peptides. Additional methods of selecting and testing peptides for HLA class II binding are well known in the art.

Example 7: Identification of the portion of a cancer associated polypeptide encoding an antigen

To determine if the cancer associated antigens isolated as described above can provoke a cytolytic T lymphocyte response, the following method is performed. CTL clones are generated by stimulating the peripheral blood lymphocytes (PBLs) of a patient with autologous normal cells transfected with one of the clones encoding a cancer associated antigen polypeptide or with irradiated PBLs loaded with synthetic peptides corresponding to the putative protein and matching the consensus for the appropriate HLA class I molecule (as described above) to localize an antigenic peptide within the cancer associated antigen clone (*see,* e.g., Knuth et al., *Proc. Natl. Acad. Sci. USA* 81:3511-3515, 1984; van der Bruggen et al., *Eur. J. Immunol.*24:3038-3043, 1994). These CTL clones are screened for specificity against COS cells transfected with the cancer associated antigen clone and autologous HLA alleles as described by Brichard et al. (*Eur. J. Immunol.* 26:224-230, 1996). CTL recognition of a cancer associated antigen is determined by measuring release of TNF from the cytolytic T lymphocyte or by ^{51}Cr release assay (Herin et al., *Int. J. Cancer* 39:390-396, 1987). If a CTL clone specifically recognizes a transfected COS cell, then shorter fragments of the cancer associated antigen clone transfected in that COS cell are tested to identify the region of the gene that encodes the peptide. Fragments of the cancer associated antigen clone are prepared by exonuclease III digestion or other standard molecular biology methods. Synthetic peptides

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are prepared to confirm the exact sequence of the antigen.

Optionally, shorter fragments of cancer associated antigen cDNAs are generated by PCR. Shorter fragments are used to provoke TNF release or ^{51}Cr release as above.

Synthetic peptides corresponding to portions of the shortest fragment of the cancer associated antigen clone which provokes TNF release are prepared. Progressively shorter peptides are synthesized to determine the optimal cancer associated antigen tumor rejection antigen peptides for a given HLA molecule.

A similar method is performed to determine if the cancer associated antigen contains one or more HLA class II peptides recognized by T cells. One can search the sequence of the cancer associated antigen polypeptides for HLA class II motifs as described above. In contrast to class I peptides, class II peptides are presented by a limited number of cell types. Thus for these experiments, dendritic cells or B cell clones which express HLA class II molecules preferably are used.

Example 8: Recognition of cancer antigens by cancer patient sera

Several of the cancer antigen identified herein were tested for reactivity with sera from normal and breast cancer patients according to standard procedures (e.g., the SEREX procedure outlined above).

Table 3: Serology of antigens

SEQ ID NO	Gene/Clone	Breast Cancer Patient Sera	Normal Sera
1	Br-38/HSP105 (MK)	6/31	0/30
2,3	Br-39/HSP105 (MK)	3/31	0/30
4,5	RGS-GAIP interacting protein GIPC (MK)	3/31	0/30
6,7	NS1-binding protein/KIAA0850 (MK)	3/31	0/30
8	Opa-interacting protein OIP2 (MK)	3/31	0/30
9,10	Kinesin family protein 3B (KIF3B) (MT)	2/31	0/30
11	Endothelial-monocyte activating protein (EMAP2) (MT)	2/31	0/30
12	Unknown TOM1 protein (MT311)	2/31	0/30
13	Outer mitochodrial membrane protein 34kDa (MT)	1/31	0/30

14,15	IPL (MK)	1/31	0/30
16,17	Mus ACF7 neural isoform (MK)	1/31	0/30
18	Cyclin D3 (MT)	1/31	0/30

The data show that proteins encoded by SEQ ID NO:1-12 were recognized by multiple breast cancer patients' sera, but not by control individuals' sera. Proteins encoded by SEQ ID NO:13-18 were recognized by only a single breast cancer patient's sera, but not by control

5   individuals' sera. The

EQUIVALENTS

Those skilled in the art will recognize, or be able to ascertain using no more than routine experimentation, many equivalents to the specific embodiments of the invention

10   described herein. Such equivalents are intended to be encompassed by the following claims.

All references disclosed herein are incorporated by reference in their entirety.

We claim:

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Claims

1.   A method of diagnosing a disorder characterized by expression of a human cancer associated antigen precursor coded for by a nucleic acid molecule, comprising:

contacting a biological sample isolated from a subject with an agent that specifically binds to the nucleic acid molecule, an expression product thereof, or a fragment of an expression product thereof complexed with an HLA molecule, wherein the nucleic acid molecule is a NA Group 1 nucleic acid molecule, and

determining the interaction between the agent and the nucleic acid molecule or the expression product as a determination of the disorder.

2.   The method of claim 1, wherein the agent is selected from the group consisting of

(a)   a nucleic acid molecule comprising NA group 1 nucleic acid molecules or a fragment thereof,

(b)   a nucleic acid molecule comprising NA group 3 nucleic acid molecules or a fragment thereof,

(c)   a nucleic acid molecule comprising NA group 5 nucleic acid molecules or a fragment thereof,

(d)   · an antibody that binds to an expression product of NA group 1 nucleic acids,

(e)   an antibody that binds to an expression product of NA group 3 nucleic acids,

(f)   an antibody that binds to an expression product of NA group 5 nucleic acids,

(g)   an agent that binds to a complex of an HLA molecule and a fragment of an expression product of a NA group 1 nucleic acid,

(h)   an agent that binds to a complex of an HLA molecule and a fragment of an expression product of a NA group 3 nucleic acid, and

(i)   an agent that binds to a complex of an HLA molecule and a fragment of an expression product of a NA group 5 nucleic acid.

3.   The method of claim 1, wherein the disorder is characterized by expression of a plurality of human cancer associated antigen precursors and wherein the agent is a plurality of agents, each of which is specific for a different human cancer associated antigen precursor, and wherein said plurality of agents is at least 2, at least 3, at least 4, at least 4, at least 6, at least 7, or at least 8, at least 9 or at least 10 such agents.

4.   The method of claims 1-3, wherein the agent is specific for a human cancer associated antigen precursor that is a breast cancer associated antigen precursor.

5.   A method for determining regression, progression or onset of a condition characterized by expression of abnormal levels of a protein encoded by a nucleic acid molecule that is a NA Group 1 molecule, comprising

        monitoring a sample, from a patient who has or is suspected of having the condition, for a parameter selected from the group consisting of

        (i)   the protein,

        (ii)   a peptide derived from the protein,

        (iii)   an antibody which selectively binds the protein or peptide, and

        (iv)   cytolytic T cells specific for a complex of the peptide derived from the protein and an MHC molecule,

        as a determination of regression, progression or onset of said condition.

6.   The method of claim 5, wherein the sample is a body fluid, a body effusion or a tissue.

7.   The method of claim 5, wherein the step of monitoring comprises contacting the sample with a detectable agent selected from the group consisting of

        (a)   an antibody which selectively binds the protein of (i), or the peptide of (ii),

        (b)   a protein or peptide which binds the antibody of (iii), and

        (c)   a cell which presents the complex of the peptide and MHC molecule of (iv).

8.   The method of claim 7, wherein the antibody, the protein, the peptide or the cell is labeled with a radioactive label or an enzyme.

9.   The method of claim 5, comprising assaying the sample for the peptide.

10.   The method of claim 5, wherein the nucleic acid molecule is a NA Group 3 molecule.

11.   The method of claim 5, wherein the nucleic acid molecule is a NA Group 5 molecule.

12.　The method of claim 5, wherein the protein is a plurality of proteins, the parameter is a plurality of parameters, each of the plurality of parameters being specific for a different one of the plurality of proteins, at least one of which is a cancer associated protein encoded by a NA Group 1 molecule.

13.　A pharmaceutical preparation for a human subject comprising

an agent which when administered to the subject enriches selectively the presence of complexes of an HLA molecule and a human cancer associated antigen, and

a pharmaceutically acceptable carrier, wherein the human cancer associated antigen is a fragment of a human cancer associated antigen precursor encoded by a nucleic acid molecule comprises a NA Group 1 molecule.

14.　The pharmaceutical preparation of claim 13, wherein the agent comprises a plurality of agents, each of which enriches selectively in the subject complexes of an HLA molecule and a different human cancer associated antigen, wherein at least one of the human cancer associated antigens is encoded by a NA Group 1 molecule.

15.　The pharmaceutical preparation of claim 14, wherein the plurality is at least two, at least three, at least four or at least 5 different such agents.

16.　The pharmaceutical preparation of claim 13, wherein the nucleic acid molecule is a NA Group 3 nucleic acid molecule.

17.　The pharmaceutical preparation of claim 13, wherein the agent is selected from the group consisting of

(1) an isolated polypeptide comprising the human cancer associated antigen, or a functional variant thereof,

(2) an isolated nucleic acid operably linked to a promoter for expressing the isolated polypeptide, or functional variant thereof,

(3) a host cell expressing the isolated polypeptide, or functional variant thereof, and

(4) isolated complexes of the polypeptide, or functional variants thereof, and an HLA

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molecule.

18. The pharmaceutical preparation of claims 13-17, further comprising an adjuvant.

5   19. The pharmaceutical preparation of claim 13, wherein the agent is a cell expressing an isolated polypeptide comprising the human cancer associated antigen or a functional variant thereof, and wherein the cell is nonproliferative.

20. The pharmaceutical preparation of claim 13, wherein the agent is a cell expressing an
10   isolated polypeptide comprising the human cancer associated antigen or a functional variant thereof, and wherein the cell expresses an HLA molecule that binds the polypeptide.

21. The pharmaceutical preparation of claim 13, wherein the agent is at least two, at least three, at least four or at least five different polypeptides, each coding for a different human
15   cancer associated antigen or functional variant thereof, wherein at least one of the human cancer associated antigens is encoded by a NA Group 1 molecule.

22. The pharmaceutical preparation of claim 13, wherein the agent is a PP Group 2 polypeptide.
20

23. The pharmaceutical preparation of claim 13, wherein the agent is a PP Group 3 polypeptide or a PP Group 4 polypeptide.

24. The pharmaceutical preparation of claim 20, wherein the cell expresses one or both of
25   the polypeptide and HLA molecule recombinantly.

25. The pharmaceutical preparation of claim 20, wherein the cell is nonproliferative.

26. A composition comprising
30   an isolated agent that binds selectively a PP Group 1 polypeptide.

27. The composition of matter of claim 26, wherein the agent binds selectively a PP Group

2 polypeptide.

28. The composition of matter of claim 26, wherein the agent binds selectively a PP Group 3 polypeptide.

29. The composition of matter of claim 26, wherein the agent binds selectively a PP Group 4 polypeptide.

30. The composition of matter of claim 26, wherein the agent binds selectively a PP Group 5 polypeptide.

31. The composition of claims 26-30, wherein the agent is a plurality of different agents that bind selectively at least two, at least three, at least four, or at least five different such polypeptides.

32. The composition of claims 26-30, wherein the agent is an antibody.

33. The composition of claim 31, wherein the agent is an antibody.

34. A composition of matter comprising
a conjugate of the agent of claims 26-30 and a therapeutic or diagnostic agent.

35. A composition of matter comprising
a conjugate of the agent of claim 31 and a therapeutic or diagnostic agent.

36. The composition of matter of claim 34, wherein the conjugate is of the agent and a therapeutic or diagnostic that is a toxin.

37. A pharmaceutical composition comprising an isolated nucleic acid molecule selected from the group consisting of NA Group 1 molecules and NA Group 2 molecules, and a pharmaceutically acceptable carrier.

38.   The pharmaceutical composition of claim 37, wherein the isolated nucleic acid molecule comprises a NA Group 3 or NA Group 4 molecule.

39.   The pharmaceutical composition of claim 37, wherein the isolated nucleic acid molecule comprises at least two isolated nucleic acid molecules coding for two different polypeptides, each polypeptide comprising a different human cancer associated antigen.

40.   The pharmaceutical composition of claims 37-39 further comprising an expression vector with a promoter operably linked to the isolated nucleic acid molecule.

41.   The pharmaceutical composition of claims 37-39 further comprising a host cell recombinantly expressing the isolated nucleic acid molecule.

42.   A pharmaceutical composition comprising
        an isolated polypeptide comprising a PP Group 1 or a PP Group 2 polypeptide, and
        a pharmaceutically acceptable carrier.

43.   The pharmaceutical composition of claim 42, wherein the isolated polypeptide comprises a PP Group 3 or a PP Group 4 polypeptide.

44.   The pharmaceutical composition of claim 42, wherein the isolated polypeptide comprises at least two different polypeptides, each comprising a different human cancer associated antigen.

45.   The pharmaceutical composition of claim 42, wherein the isolated polypeptides are breast cancer polypeptides or HLA binding fragments thereof.

46.   The pharmaceutical composition of claim 42, wherein the isolated polypeptides are gastric cancer polypeptides or HLA binding fragments thereof.

47.   The pharmaceutical composition of claims 42-46, further comprising an adjuvant.

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48.   An isolated nucleic acid molecule comprising a NA Group 3 molecule.

49.   An isolated nucleic acid molecule comprising a NA Group 4 molecule.

5   50.   An isolated nucleic acid molecule selected from the group consisting of

        (a) a fragment of a nucleic acid molecule having a nucleotide sequence selected from

the group consisting of nucleotide sequences set forth as SEQ ID NOs:1-593, of sufficient

length to represent a sequence unique within the human genome, and identifying a nucleic

acid encoding a human cancer associated antigen precursor,

10   (b) complements of (a),

        provided that the fragment includes a sequence of contiguous nucleotides which is not

identical to any sequence selected from the sequence group consisting of

        (1) sequences having the GenBank accession numbers of Table 1, and other publicly

available sequences,

15   (2) complements of (1), and

        (3) fragments of (1) and (2).

51.   The isolated nucleic acid molecule of claim 50, wherein the sequence of contiguous

nucleotides is selected from the group consisting of:

20   (1)   at least two contiguous nucleotides nonidentical to the sequence group,

        (2)   at least three contiguous nucleotides nonidentical to the sequence group,

        (3)   at least four contiguous nucleotides nonidentical to the sequence group,

        (4)   at least five contiguous nucleotides nonidentical to the sequence group,

        (5)   at least six contiguous nucleotides nonidentical to the sequence group,

25   (6)   at least seven contiguous nucleotides nonidentical to the sequence group.

52.   The isolated nucleic acid molecule of claim 50, wherein the fragment has a size

selected from the group consisting of at least: 8 nucleotides, 10 nucleotides, 12 nucleotides,

14 nucleotides, 16 nucleotides, 18 nucleotides, 20, nucleotides, 22 nucleotides, 24

30   nucleotides, 26 nucleotides, 28 nucleotides, 30 nucleotides, 50 nucleotides, 75 nucleotides,

100 nucleotides, and 200 nucleotides.

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53.   The isolated nucleic acid molecule of claim 50, wherein the molecule encodes a polypeptide which, or a fragment of which, binds a human HLA receptor or a human antibody.

5   54.   An expression vector comprising an isolated nucleic acid molecule of any of claims 48-53 operably linked to a promoter.

55.   An expression vector comprising a nucleic acid operably linked to a promoter, wherein the nucleic acid is a NA Group 2 molecule.

10

56.   An expression vector comprising a NA Group 1 or Group 2 molecule and a nucleic acid encoding an HLA molecule.

57.   A host cell transformed or transfected with an expression vector of claim 54.

15

58.   A host cell transformed or transfected with an expression vector of claims 55 or 56.

·   59.   A host cell transformed or transfected with an expression vector of claim 54 and further comprising a nucleic acid encoding HLA.

20

60.   A host cell transformed or transfected with an expression vector of claim 55 and further comprising a nucleic acid encoding HLA.

61.   An isolated polypeptide encoded by the isolated nucleic acid molecule of claim 48 or

25   claim 49.

62.   A fragment of the polypeptide of claim 61 which is immunogenic.

63.   The fragment of claim 62, wherein the fragment, or a portion of the fragment, binds

30   HLA or a human antibody.

64.   An isolated fragment of a human cancer associated antigen precursor which, or portion

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of which, binds HLA or a human antibody, wherein the precursor is encoded by a nucleic acid molecule that is a NA Group 1 molecule.

65.   The fragment of claim 64, wherein the fragment is part of a complex with HLA.

66.   The fragment of claim 65, wherein the fragment is between 8 and 12 amino acids in length.

67.   An isolated polypeptide comprising a fragment of the polypeptide of claim 61 of sufficient length to represent a sequence unique within the human genome and identifying a polypeptide that is a human cancer associated antigen precursor.

68.   A kit for detecting the presence of the expression of a human cancer associated antigen precursor comprising

        a pair of isolated nucleic acid molecules each of which consists essentially of a molecule selected from the group consisting of (a) a 12-32 nucleotide contiguous segment of the nucleotide sequence of any of the NA Group 1 molecules and (b) complements of (a), wherein the contiguous segments are nonoverlapping.

69.   The kit of claim 68, wherein the pair of isolated nucleic acid molecules is constructed and arranged to selectively amplify an isolated nucleic acid molecule that is a NA Group 3 molecule.

70.   A method for treating a subject with a disorder characterized by expression of a human cancer associated antigen precursor, comprising

        administering to the subject an amount of an agent, which enriches selectively in the subject the presence of complexes of an HLA molecule and a human cancer associated antigen, effective to ameliorate the disorder, wherein the human cancer associated antigen is a fragment of a human cancer associated antigen precursor encoded by a nucleic acid molecule selected from the group consisting of

        (a)   a nucleic acid molecule comprising NA group 1 nucleic acid molecules,
        (b)   a nucleic acid molecule comprising NA group 3 nucleic acid molecules,

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(c)   a nucleic acid molecule comprising NA group 5 nucleic acid molecules.

71.   The method of claim 70, wherein the disorder is characterized by expression of a plurality of human cancer associated antigen precursors and wherein the agent is a plurality of agents, each of which enriches selectively in the subject the presence of complexes of an HLA molecule and a different human cancer associated antigen, wherein at least one of the human cancer associated antigens is encoded by a NA Group 1 molecule.

72.   The method of claim 71, wherein the plurality is at least 2, at least 3, at least 4, or at least 5 such agents.

73.   The method of claims 70-72, wherein the agent is an isolated polypeptide selected from the group consisting of PP Group 1, PP Group 2, PP Group 3, PP Group 4, and PP Group 5.

74.   The method of claims 70-72, wherein the disorder is cancer.

75.   The method of claims 73, wherein the disorder is cancer.

76.   A method for treating a subject having a condition characterized by expression of a human cancer associated antigen precursor in cells of the subject, comprising:

(i)   removing an immunoreactive cell containing sample from the subject,

(ii)   contacting the immunoreactive cell containing sample to the host cell under conditions favoring production of cytolytic T cells against a human cancer associated antigen which is a fragment of the precursor,

(iii)   introducing the cytolytic T cells to the subject in an amount effective to lyse cells which express the human cancer associated antigen, wherein the host cell is transformed or transfected with an expression vector comprising an isolated nucleic acid molecule operably linked to a promoter, the isolated nucleic acid molecule being selected from the group of nucleic acid molecules consisting of NA Group 1, NA Group 2, NA Group 3, NA Group 4, and NA Group 5.

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77. The method of claim 76, wherein the host cell recombinantly expresses an HLA molecule which binds the human cancer associated antigen.

78. The method of claim 76, wherein the host cell endogenously expresses an HLA molecule which binds the human cancer associated antigen.

79. A method for treating a subject having a condition characterized by expression of a human cancer associated antigen precursor in cells of the subject, comprising:

(i) identifying a nucleic acid molecule expressed by the cells associated with said condition, wherein said nucleic acid molecule is a NA Group 1 molecule;

(ii) transfecting a host cell with a nucleic acid selected from the group consisting of (a) the nucleic acid molecule identified, (b) a fragment of the nucleic acid identified which includes a segment coding for a human cancer associated antigen, (c) deletions, substitutions or additions to (a) or (b), and (d) degenerates of (a), (b), or (c);

(iii) culturing said transfected host cells to express the transfected nucleic acid molecule, and;

(iv) introducing an amount of said host cells or an extract thereof to the subject effective to increase an immune response against the cells of the subject associated with the condition.

80. The method of claim 79, further comprising identifying an MHC molecule which presents a portion of an expression product of the nucleic acid molecule, wherein the host cell expresses the same MHC molecule as identified and wherein the host cell presents an MHC binding portion of the expression product of the nucleic acid molecule.

81. The method of claim 79, wherein the immune response comprises a B-cell response or a T cell response.

82. The method of claim 81, wherein the response is a T-cell response which comprises generation of cytolytic T-cells specific for the host cells presenting the portion of the expression product of the nucleic acid molecule or cells of the subject expressing the human cancer associated antigen.

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83.   The method of claim 79, wherein the nucleic acid molecule is a NA Group 3 molecule.

84.   The method of claims 79 or 80, further comprising treating the host cells to render them non-proliferative.

85.   A method for treating or diagnosing or monitoring a subject having a condition characterized by expression of an abnormal amount of a protein encoded by a nucleic acid molecule that is a NA Group 1 molecule, comprising
        administering to the subject an antibody which specifically binds to the protein or a peptide derived therefrom, the antibody being coupled to a therapeutically useful agent, in an amount effective to treat the condition.

86.   The method of claim 85, wherein the antibody is a monoclonal antibody.

87.   The method of claim 86, wherein the monoclonal antibody is a chimeric antibody or a humanized antibody.

88.   A method for treating a condition characterized by expression in a subject of abnormal amounts of a protein encoded by a nucleic acid molecule that is a NA Group 1 nucleic acid molecule, comprising
        administering to a subject a pharmaceutical composition of any one of claims 13-25 and 37-47 in an amount effective to prevent, delay the onset of, or inhibit the condition in the subject.

89.   The method of claim 88, wherein the condition is cancer.

90.   The method of claim 88, further comprising first identifying that the subject expresses in a tissue abnormal amounts of the protein.

91.   The method of claim 89, further comprising first identifying that the subject expresses in a tissue abnormal amounts of the protein.

92.   A method for treating a subject having a condition characterized by expression of
abnormal amounts of a protein encoded by a nucleic acid molecule that is a NA Group 1
nucleic acid molecule, comprising

     (i) identifying cells from the subject which express abnormal amounts of the protein;

     (ii) isolating a sample of the cells;

     (iii) cultivating the cells, and

     (iv) introducing the cells to the subject in an amount effective to provoke an immune
response against the cells.

93.   The method of claim 92, further comprising rendering the cells non-proliferative, prior
to introducing them to the subject.

94.   A method for treating a pathological cell condition characterized by aberrant
expression of a protein encoded by a nucleic acid molecule that is a NA Group 1 nucleic acid
molecule, comprising

     administering to a subject in need thereof an effective amount of an agent which
inhibits the expression or activity of the protein.

95.   The method of claim 94, wherein the agent is an inhibiting antibody which selectively
binds to the protein and wherein the antibody is a monoclonal antibody, a chimeric antibody
or a humanized antibody.

96.   The method of claim 94, wherein the agent is an antisense nucleic acid molecule
which selectively binds to the nucleic acid molecule which encodes the protein.

97.   The method of claim 94, wherein the nucleic acid molecule is a NA Group 3 nucleic
acid molecule.

98.   A composition of matter useful in stimulating an immune response to a plurality of a
proteins encoded by nucleic acid molecules that are NA Group 1 molecules, comprising

     a plurality of peptides derived from the amino acid sequences of the proteins, wherein

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the peptides bind to one or more MHC molecules presented on the surface of the cells which express an abnormal amount of the protein.

99.   The composition of matter of claim 98, wherein at least a portion of the plurality of peptides bind to MHC molecules and elicit a cytolytic response thereto.

100.   The composition of matter of claim 99, further comprising an adjuvant.

101.   The composition of matter of claim 100, wherein said adjuvant is a saponin, GM-CSF, or an interleukin.

102.   The composition of matter of claim 98, further comprising at least one peptide useful in stimulating an immune response to at least one protein which is not encoded by nucleic acid molecules that are NA Group 1 molecules, wherein the at least one peptide binds to one or more MHC molecules.

103.   An isolated antibody which selectively binds to a complex of:

        (i)   a peptide derived from a protein encoded by a nucleic acid molecule that is a NA Group 1 molecule and

        (ii)   and an MHC molecule to which binds the peptide to form the complex, wherein the isolated antibody does not bind to (i) or (ii) alone.

104.   The antibody of claim 103, wherein the antibody is a monoclonal antibody, a chimeric antibody, a humanized antibody, or a fragment thereof.

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7

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8

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12

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        ttaattactt aatactatct taagnggact tttccttct ggttcccaaa ttttgaccat       660
        tatgccattt tcttnaacat cctggattcc tataatcccc taccanactg gatttattag       720
        aacccaattt aaagcttctn ttaacaagc                                          749
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          <211> 1756
          <212> DNA
5         <213> Homo sapiens


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10        cccaccgtca  tcgtcatggt  gggcctcccc  gcccggggca  agacctacat  ctccaagaag    180
          ctgactcgct  acctcaactg  gattggcgtc  cccacaaaag  tgttcaacgt  cggggagtat    240
          cgccgggagg  ctgtgaagca  gtacagctcc  tacaacttct  tccgccccga  caatgaggaa    300
          gccatgaaag  tccggaagca  atgtgcctta  gctgccttga  gagatgtcaa  aagctacctg    360
          gcgaaagaag  ggggacaaat  tgcggttttc  gatgccacca  atactactag  agagaggaga    420
15        cacatgatcc  ttcattttgc  caaagaaaat  gactttaaag  cgtttttcat  cgagtcggtg    480
          tgcgacgacc  ctacagttgt  ggcctccaat  atcatggaag  ttaaaatctc  cagcccggat    540
          tacaaagact  gcaactcggc  agaagccatg  gacgacttca  tgaagaggat  cagttgctat    600
          gaagccagct  accagcccct  cgaccccgac  aaatgcgaca  gggacttgtc  gctgatcaag    660
          gtgattgacg  tgggccggag  gttcctggtg  aaccgggtgc  aggaccacat  ccagagccgc    720
20        atcgtgtact  acctgatgaa  catccacgtg  cagccgcgta  ccatctacct  gtgccggcac    780
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25        gaggagatca  gggacaccta  ccctgaggag  tatgcgctgc  gggagcagga  caagtactat   1080
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30        aacgtggagt  ccgtctgcac  acaccgggag  aggtcagagg  atgcaaagaa  gggacctaac   1380
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          cgcatcaaca  gctttgagga  gcatgtggcc  tccacctcgg  ccgccctgcc  cagctgcctg   1500
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          gactcctcca  ggaaacactg  aggcagacgt  gtcggttcca  ttccattttcc  atttctgcag   1620
35        cttagcttgt  gtcctgccct  ccgcccgagg  caaaacgtat  cctgaggact  tcttccggag   1680
          agggtggggt  ggagcagcgg  gggagccttg  gccgaagagà  accatgcttg  gcaccgtctg   1740
          tgtcccctcg  gccgct                                                       1756


          <210> 33
40        <211> 771
          <212> DNA
          <213> Homo sapiens


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          gtggaagtgt  cataaactac  ccatcatcca  ttgganacct  ctgtatttta  cacaactgac    180
          actgacctgg  gaaatcccac  ataaccacag  cataagggaa  gcttctcana  gtcctcagca    240
          gctcaggtta  attggtctct  ttcagccagg  tatcattagg  agccgcttgc  cgcaaagcca    300
50        gaaaggtgag  gaagcganac  cagtctgggc  tccgggatgc  ttggtgcagc  cccgggtcca    360
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55        cactattgnc  gtctcatgaa  ccgggttang  gcccttcttt  gcatcctctg  acctttcccg    660
          ngtgtgccaa  acngacttcc  cgttcaggta  caagggattc  cccacgggna  gccctaaacc    720
          naacagggcg  tcaattttca  aggncggngt  gaaaaagggc  cttttcaggg  t               771


          <210> 34
60        <211> 730
          <212> DNA
          <213> Homo sapiens
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gacattgttg cagctcttga tgatgatttt gactttgatg atccagataa tctgcttgag       180
gatgacttta ttcttcaggc caataaggca acaggagagg aagagggaat ggatatacag       240
aaatctgaga atgaagatga cagcgagtgg gaagatgtgg atgatgagaa gggagatagc       300
aatgatgact atgactctgc aggcctattg tcagatgaag actgtatgtc tgtgcccgga       360
aaaactcaca gagctatagc agatcacttg ttctggagtg aggaaacaaa gagtcgcttc       420
acggagtatt cgatgacttc ctcagtcatg aggagaaatg aacagctgac cctacatgat       480
gagaggtttg agaagtttta tgagcaatat gatgatgatg aaattggagc tctggataat       540
gcagaattgg aaggttctat tcaagtggga cagcaatcgc ttacaggaag ttttgaatga       600
ctactataaa gagaaggcag agaattgtgt aaaattgaat acccttgaac ccttggagga       660
tcaagacctg cccaatgaat gagcttgatg agtctgagga ngaagaaatg attactgtag       720
tccttgaaaa                                                              730


        <210> 35
        <211> 726
        <212> DNA
        <213> Homo sapiens


        <400> 35
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agcaaatgta agcttataat attaaaaatt aaagtattac aatatttaca agatggttgg       120
caggggacac ttactagtat aaaaaataata caaatattgt attttcctct tatctgccag       180
taaaaatggc aaacagtttt gtctttctga agtttctagt caataaccaa agatgaggag       240
cccctaataa agtgccttgc cctgtatgct ccactgncta tagctttaga ccctcaacat       300
tcttcttcaa gttcagcagc tctttttctt gccttctttt ctccagttta aatgctaatt       360
tgttagcttt cttctccact cttcgttcct tgcgctcttc ttttatagct tgctttcttg       420
ctctttttatc ttctttgctt tcattttttag aacgtggctg agttgatact ttaggaagat       480
cactgccatt aatcatctgt attctttcag tttgctttgc tgtgagtcct ttctttggta       540
agacattgag aggtattcct gttttagaag atattcnaaa tttgtttttgg gctttggttg       600
gatacttgat aaagctgtgg atggttatat aaaatttggg tatgtaccan caaaatagga       660
ttcacaaatc cccacttctc tttgggcttt cttcnangga ctaccngtaa atcatttctt       720
cctccc                                                                  726


        <210> 36
        <211> 832
        <212> DNA
        <213> Homo sapiens


        <400> 36
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gacccgctca agaacctgcg gctcccacgg gagctgaagc ccacaataag tacagctgga       120
tgcgcaagaa ggaggagcgg atgtaccccc tgaagtcctc cgtggaggac atggacgtcc       180
tggaactgga cttcagaatg tggcgggccg aggtccagca ccagtacaag gagaagcagc       240
atgagctggt gaagctgcag cggcgccggg actccgagga caggcacgag gagtcccatg       300
gaagcttggc acgcaggccg tggaaacaga cccacgcccc cgagcgccct gtcgcccgcc       360
cgcaagaggg ggaagaactg caacagtagc ggaaagctga gcagcaaatc tctgccgaca       420
tcagatgact atgagctggg agcaggaata aggaagagac acaaagggcc caaggaggaa       480
cacaatgccc ttattggaac agggaaagcc agggagagga accagacttg ggatgaacac       540
gaggcttcgt ctaagttcat aagtcagctg aagattaaga agaagaagat ggacagcgac       600
cagtagcagt tggcaaagca agctcgacaa aggccctttt ccttaccaag caggacaagt       660
ttaaaatcac ccttcaagtt ttcagacagt gcttgggggg gaaatcaaaa acttggcagg       720
gggcttcaac aagtacttta acttcttatg acagccttgt tgggcaaagg acaggaaggt       780
gcttggccaa gggcctttcg ggcttgtttc tgaaatcttt ccanagaagg ta               832


        <210> 37
        <211> 1294
        <212> DNA
        <213> Homo sapiens


        <400> 37
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      gacactatta accaaaagtc agtaaccact caaatgctca tgcacagaat ggataaagaa      120
      atggcaatat catcacataa tcaactattt tgcagcaata aaaagaacaa tatatttaaa      180
      tcttacaatc ataatactaa gcaaaaaaaa aaaaaacaaa aaaaaacaga agcaaaagag      240
      catattccgn gagattccat ttgtatcaag ttcaaaagaa atcaaagatc atntacgctt      300
  5   ttagaagtct ggagatttat taaccatggt tggatggaca gtgatatgaa aggggcacaa      360
      ggggcacttc caggttgcta gcacgttcta tcttttgatc tgagtaaaca gttacatgag      420
      tgtattaaaa cagaggcttt aaaaagagtg cctttgtgag cctttgacct ctttatcaat      480
      acctactccc caggaatttg caaccatttt tatcacctcc actttttgtt ttattgttgt      540
      tgttaaaaat gaactcagta tgtttaataa agttggtat tatcaaaatc gcagtacaaa      600
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      cactgggccc gtgcccaaag agagcctgac cacagcctgg ggtctctggg tgggcagaaa      720
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      agtggagaaa aatgcagact cagaagcagt ccatataaca gctcaaaaag agctagccgg      840
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 15   cagcaggcta cactgccaag aacccagatg gcggccttcc tgcggccatc cgcacgggcc      960
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      aatcttccga agagtcgctg aaggaggaat gcaccttagc ctctcgaagc agcaaacaaa     1140
      accactggtt cctgctggtg gcttggctta ngtttcanan tcccggaagg ggccngaaga     1200
 20   aggggggtgtg tgccaggccc cttttggtca ncttaggggc ccgcagcttg ncttggttgg     1260
      cctttggccc ccattgccnc acaggaaggg aaag                                 1294
```

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          <210> 38
          <211> 858
 25       <212> DNA
          <213> Homo sapiens


          <400> 38
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 30   gcatggcatc accctgctaa gtgagatcgc agagctggag ctggagagga ggagccaaga      120
      gatgggaggt gcggagcggg ccctggtggc gcggccctcc ctggagagtc tgctggcagc      180
      tggcagccac atgctgaggg aggtgctgga tgggcccgtg gtggacccac tcaagaacct      240
      gcggctcccg cgggagctga agcccaacaa gaagtacagc tggatgcgca agaaggagga      300
      gcggatgtat gccatgaagt cctccctgga ggacatggac gccctggagc tggacttccg      360
 35   gatgcggctg ccgaggtgc agcgccagta caaggagaag cagcgtgagc tggtgaagct      420
      gcagcgccgc cgggactccg aggacaggcg cgaggaaccc catagaagct ggcacgcag      480
      aggccctggc aggccgcgga aacggaccca cgccccgagc gccctgtcgc cccccgcaa      540
      gagagggaag agcggccaca gtagcggaaa gctgagcagc aaagtctctt gctgacatca      600
      gatgattatg agctgggagc agggataaga aagagacaca aggggtctga ggaggaacat      660
 40   gatgccctta tcggaatggg gaaagccagg gggaggaacc agacttggga tgaacatgag      720
      gcctcgtcgg acttcatcag tcagcttaag attaagaaga agaagatgcc cacgaccagg      780
      agcattggca agcaactnga caanggcctt ttccttacca agcaggacaa gttgaattgc      840
      ccttcaagtt ttcggaca                                                    858
```

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 45       <210> 39
          <211> 634
          <212> DNA
          <213> Homo sapiens


 50       <400> 39
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      catcaagtca cacgcccaca cgacagaatt ccatttacaa aatgttcctn gggaagcctn      120
      caccgaaccc gtgcccaaag agagcccgaa ccaagcctgg ggtctctggg tgggcanaaa      180
      acgtgagtgc ggggggtgggg ggaactcggg ggaggggggag gagggcaggg aggagggcaa      240
 55   gtgganagaa acgcagactn aaaagcagcc atataacagc tcaaaaagag ccagccgggg      300
      atattatcac aatgatacag tcaaatnaaa gcaaaaatca aaatcattcg gctgataaca      360
      gcaagctacg ctgccaagaa cccatatggc agccttcttg cggncattcg cacgggcctt      420
      ttacccacca tntttcccgt gcgcccactc gcttcccttt gcttacttg cacgccttt       480
      ttgctaggaa acacggaagg ttttttgggt ttggagctag taaccttggc aaaccgtttc      540
 60   ctccgaanag ttgctgaang nngaaacncg ccttnggctt tcgaaacanc tgacnaaang      600
      ggtgttnctt gcttggggcc gntttggggtt taaa                                 634
```

```
          <210> 40                              16
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```
        <211> 1244
        <212> DNA
        <213> Homo sapiens

5       <400> 40
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        atttaacagg ctctccaggt gatttgaatg tacatggaag ttgtaaaacc actggtatag   120
        atcatatgga gagagggtta cctgtttaaa atacagattc ccaggcctgt ctctttaagg   180
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10      tttgggggaac ggtaggctat agaaactctg taaagccctt agattttac atctagaatt    300
        ctatacccaa cactttgggt aaagcctccg ggaggcactt taaaagtgga ctttactcac   360
        gtgctcctgc agggaacaag atacagataa tcccgaatcg agcaagagtt cttttctgga   420
        aagcctcggg taagttgatt tttaagtagg atggaatccc gttgattcac tctgaatttc   480
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15      ttccagataa tggtccttcc tgttgaatac agcattttcc tttaatgcag aaaaaaaact   600
        atgtatgact tgatggagag ctttacataa agtccaagga gccatttgaa agctttgcat   660
        caattcgaga agcagacttg gactgggcta actaaggcag tttactaata gtgtgaagag   720
        agggagtgta atattgatat ggcaaaagag aattgttgct ttggtgttaa ccaggtgtcc   780
        cttctctgca gtgatgttta tccatgcatc gttgagactt cggaacctca agaacaaact   840
20      ggagaataaa atggaaggaa taggtttgaa gaggacaccg atgggcattg tcctggatgc   900
        cctagaacag caggaagaag gcatcaacag actcactgac tatatcagca aagtgaagga   960
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        ccagacctat tttctgcttg cgttttgaa acaggaggtg cacgtaccac ccaattatct  1080
        atggcagcat gcatgtatag ccgaactat tttcagctct gatgtttcag agagaagacc  1140
25      tcagaaaccg aaagaaaacc accaccctcc tattgtgtct gaagtttcac gtgtgtttat  1200
        gaaatctaat gggaaatgga tcacacgatt tctttaaggg aatt                   1244

        <210> 41
        <211> 780
30      <212> DNA
        <213> Homo sapiens

        <400> 41
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35      acttaagagt gaaaagcaaa tgaagaagtc tgagaaaaag agcaagcaag agaaagagaa   120
        gagcaagaag aaaaaaggag gtaaaacaga acaggatggc tatcagaaac ccaccaacaa   180
        acacttcacg cagagtccca agaagtcagt ggccgacctg ctgggtcct ttgaaggcaa   240
        acgaagactc cttctgatca ctgctcccaa ggctgagaac aatatgtatg tgcaacaacg   300
        tgatgaatat ctggaaagtt tctgcaagat ggctaccagg aaaatctctg tgatcaccat   360
40      cttcggccct gtcaacaaca gcaccatgaa aatcgaccac tttcagctag ataatgagaa   420
        gcccatgcga gtggtggatg atgaagactt ggtagaccag cgtctcatca gcgagctgag   480
        gaaagagtac ggaatgacct acaatgactt cttcatggtg ctaacagatg tggatctgag   540
        agtcaagcaa tactatgagg tccaataaca atgaagtctg tgttngatct gatcgatact   600
        ttccagtccc gaattaaaga tatggagaag cngaanaaag gagggccttg tttgcaaaga   660
45      nggccaaaaa gccagtccct tggagaactt tcctatccaa ggttnccgtt ggaaggaagg   720
        aaggttgctt ggnngaactc tngttcctta ccgatgaaaa actggggcct atttcacagc   780

        <210> 42
        <211> 790
50      <212> DNA
        <213> Homo sapiens

        <400> 42
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55      gcctgtgctg tacagggggt aaagtgtgag gggtcaagaa ttttcatgcc agaaattcca   120
        tagcagccta ctagaactct ggaagtatcg cctttggctg cagtgccaga ttctggtgag   180
        gatttcctgg accccgattt atatctgaaa aaacactaaa aataacagaa gcagggcagg   240
        aagtggctat gataacaaag ctgggcttgg tactttctct ggcttttgtg gccaatatta   300
        ctggactccc gtggtatcca gtttcataaa agaaactcat acaaagcaga gatatcttaa   360
60      ttattttcag actggcattt caaaaagtgt caatttaagt aagtattata agttatttgt   420
        tctttgtttt atcttttcag atgtttcttg aaacattgt ggtgtgatct ttaacagagt   480
        tttcacttac caattaatac anaanataag aaaaagcttt aaatacatat tttataaaat   540
        tttatatgcc aaataagggg ccttcatata aganaaggaa antaatatca aattttcagt   600
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17

```
actattattt agcactagaa gcccctccag tttagaaaaa caattctttt aaatgtcttt    660
atgatttgag gttcaataat aacctcatgg aataggtgga aagtttgcta nttattttag    720
tcctttagaa aaancacttg aaagaaaaaa ggcagggaaa tggtagtccg cagtgtggga    780
aaaaatggaa                                                           790
```

        <210> 43
        <211> 761
        <212> DNA
        <213> Homo sapiens

        <400> 43
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gcgcggccta cacgctccgc tcgctcgctc gctcccgcct cccgccccgc gcccggccat    120
ggcggagccg tcgtccgccc gacgcccggt gcctctcatc gagtcggagc tgtacttcct    180
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gctggagcag taccagttgt tgccgaagag attggactgg gagggcaacg agcacaacag    300
gagctacnag gagttggtct tgtccaataa gcatgtggct cctgatcatc ttttgcaaat    360
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acttctttac ttggtgcagg aaggcagtct ttgctacgta caagtaaaag actgcaggca    480
cacagtttgg aagggctctg cctttgctgc tcttcataga ggaagacctt ctgaaatgcc    540
antnaattat ggtttcccac caaattcttg ngggagatac atcgagggaa aacnacntca    600
cagggtgttt cacttttagt ccagcatttt ccaggnaact tatgtattaa ncaatattaa    660
aaaatgcnca aaaagggatt nttcnggaca ttcttatntt gctnggttan ctggggtacn    720
cttttgatng gacagggaca tttgaaactt ttncanggtt c                        761
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        <210> 44
        <211> 789
        <212> DNA
        <213> Homo sapiens

        <400> 44
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gaaaacttgc attncttcct ctgaaaatct gtcttggata cataaacatt ntgaagagtg     60
ataatatata tattgccaag ctgcctttcn gaaactctan gnngtagcnt ttaacatttt    120
acacaccant cagcaacata caaattttgc ccattgacaa acaagccatt cccacaggat    180
cttaaggttt ggttacagca gaaatgttat caagtangaa agaaagtgat aaaatatgtt    240
tncaacaggt tttaaatag atttgtaagt aatttaacta tgtntgtgct aaaatgttta    300
atgatttaat aatgccatca tcctacccta agatccattn nntctncatg gctccttatt    360
agggttgagt tcataaatat tattncttct tacagcctca atataagctt catgaccctg    420
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gtcagtaatc caaactggag ggtgaaattc atatnaatgc tnctatttgc aagctctgct    540
ggangcntcc tccgcaaatt ctccntctna ggcttattgt cnttcttnnt ctntcngctt    600
cttttggag gagataaatt ctcngtnaga tanttccatc cttntgaant actacangaa    660
ncntagtaaa ttcggtcgan cgacactgat gnccttaatg ggaggcctgc caaanttgat    720
gccccntntt canchttgtcc aattcgggaa tntctagagg aagagtcnct tggaactttt    780
nctgnaacc                                                            789
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        <210> 45
        <211> 738
        <212> DNA
        <213> Homo sapiens

        <400> 45
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tgccctgcac gctggccatg tgggagttgg gccactgcga ccccggcgc tgcacgggcc    180
gcaagctggc ccgcctgggg ctggtgcgct gcctgcgcct gggccacaga ttcggcggtc    240
tggtgctgag ccccgtgggc aagcagtacg cgtcccccgc agacagacag ctggtggcgc    300
agtctggggt cgccgtcatc gactgctcct gggccaggct ggacgagaca ccgtttggga    360
agatgcgagg gagccacttg cgcctgcttgc cctacctggt ggccgcaacc ccgtgaacta    420
tggccggccc tacagacttt cctgccgtga ancgtttgct gccacctttc tgcatngtag    480
gctttttncag accttgctgt cattttgctg cggaaagttt aaatgggca aggggcttta    540
tggacctgaa cncgccaagn tcctggacaa gtncccggtc ttgcngcanc cccggangaa    600
gtgctttaag gcgnaacaag anttcttggg caaattgcca atggaaaagc ccccaaggan    660
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                                    18

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     ggaggaaaat cgaatccctt tnaatgtggg attcaagggg aaaaaaattt tggaaaaccc   720
     caaaaggncc ttttggcc                                                 738


          <210> 46
5         <211> 760
          <212> DNA
          <213> Homo sapiens


          <400> 46
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     attgatgaaa acgggagaga tgagaatact atgaaaaata tattttcaaa aaagaggaaa   120
     ttagaagttg catgttcaga ttgtgaagtt gaagttctcc cattaggatt ggaaacacat   180
     cctagaactg ctaaaactga gaaatgtcca ccaaagttca gtaataatcc caaggagctt   240
     actatggaaa cgaaatatga taatatttca agaattcagt atcattcagt tattagagat   300
15   cctgaatcca agacagccat tttttcaacac aatgggaaaa aaatggaatt tgtttcctcg   360
     gagtctgtca ctccagaaga taatgatgga tttaaaccac cccgagagca tctgaactct   420
     aaaaccaagg gagcacaaaa ggactcaagt tcaaaccatg ttgatgagtt tgaagataat   480
     ctgctgattg aatcagatgt gatagatata actaaatata gagaagaaac tccaccaagg   540
     agcagatgta accaggcgac cacattggat aatcagaata ttaaaaaggc aattgaggtt   600
20   caaattcaga aacccccaag agggacgatc tacagcatgt caaagaccag cangtatttt   660
     gtgatgaaga agttgcttaa gtgaaaccca ggaatacttc atctgattct cttaccaaag   720
     gttcaattaa angggaatg tggtttttat tgggatgccc                          760


          <210> 47
25        <211> 792
          <212> DNA
          <213> Homo sapiens


          <400> 47
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     cagtcccagc ttcatagcca taatcccatg ttagctctgt tcttgctttc acatacctgt   120
     tggtgaagaa tgccaccaat ggaaaattcc tgttgtgtgt ttctacaaaa acattctgta   180
     ccaagagatt tgggcaacaa ctatgattaa ggaagcggcc gacatttcct tcttttgtgg   240
     catccaataa aaacacattc cctttattga actttgttag agaatcagat gaagtattct   300
35   tggtttcact tagcaactct tcatcacaaa atacctgctg tctttgacat gctgtagatc   360
     gtccctcttg gggtttctga atttgaacct caattgcctt tttaatattc tgattatcca   420
     atgtggtcgc ctggttacat ctgctccttg gtggagtttc ttctctatat ttagttatat   480
     ctatcacatc tgattcaatc agcagattat cttcaaactc atcaacatgg tttgaacttg   540
     agtccttttg tgctcccttg gtttagagt tcagatgctc tcggggtggt ttaaatccat   600
40   cattatcttc tggagtgaca gactccgagg aaacaaattc cattttttc ccattgggtt   660
     tgaaaaatgg ctggcntggg attcaaggat ctctaataac ctgaatgaat acctgaattc   720
     ntggaaatat tatcataatt tcgngtttcc atagtaagcc nccctttggga attaattaac   780
     tgaacctttg gg                                                       792


45        <210> 48
          <211> 823
          <212> DNA
          <213> Homo sapiens


50        <400> 48
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     tcttctggag gagagcagga gtgttcagaa gcaaatgaag atcctgcaga agaagcaagc   120
     ccagattgtg aaagagaaag ttcacttgca gagtgaacat agcaaggcta tcttggcaag   180
     aagcaagcta gaatctcttt gcagagaact tcagcgtcac aataagacgt taaaggagga   240
55   aaatatgcag caggcacgag aggaagaaga acgacgtaaa gaagcaactg cacatttcca   300
     gattacctta aatgaaattc aagcccagct ggagcagcat gacatccaca cgccaaact   360
     ccgacaggaa aacattgagc tggggggagaa gctaaagaag ctcatcgaac agtacgcact   420
     gagggaagag cacattgata aggtgttcaa acataaggaa ctgcaacagc agctcgtgga   480
     tgccaaactg cagcaaacga cacaactgat aaaagaagct gatgaaaaac atcagagaga   540
60   gagagagttt ttattaaaag aagcgacaga atcgaggcac aaatacgaac aaatgaaaca   600
     gcaagaagta cactaaaaca gcagctttct ctttatatgg ataagtttga agaattncag   660
     actaccatgg caaaaagcaa tgaactgttt caaccttcag acaggaaatg ggaaaagatg   720
     ccaagaaaat taaaaactgg gaaagagaac cattaattgg ggttcccaat ggggaaacaa   780
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                                        19

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tattaaacnc ttttgcaatg gntgaagaaa aaacagtccg ggt                   823

        <210> 49
        <211> 700
5       <212> DNA
        <213> Homo sapiens


        <400> 49
        gttaagttta tcatacatat ttacttaatc tatacagaat caagtagata aaatcagatt   60
10      cacattagtg aaaaatctct acaaaatgtc tttgaaaagc aaaacgagac tgcctcttaa  120
        caattcgtat cctcatgaaa gacgtgggct gtaaaaataa agcagtgtgt ttagcacaaa  180
        ctagaagata tctgcatcat ttttttcaca gttatttcca tctacagtct gaaagaggta  240
        gattttctg caacacctga gaattgaatt gtgataacca ggtgtaataa aggcagttgc  300
        atacataact gaaaaatact ggtctcaaga ccaagaaatg tactcctaac aagtctgagg  360
15      atgaaatggt ccatattacc caagacccaa gttttctcta caccttggag tccaccgcca  420
        atataaataa tacacatcac gattccatga tggtgcaaca attgcaattt aagtgaattc  480
        aacatttaaa ccttttctgg gccagcctag tagcattaca gtgttctaga atatggtaga  540
        tatggggtgc gctacaaagc cacaacactg ggctggtgag gtgatcctgt aggaagatgt  600
        ccttctcaag gggtcccatt tggttttat tcacangggt aatggggang aanggttctg  660
20      aaaggacaac caaatgcctt cccggacngg aaatccatat                        700


        <210> 50
        <211> 911
        <212> DNA
25      <213> Homo sapiens


        <400> 50
        aggagctggg cccagagacg cggggacggg ccgtgggccc ccggaacgag gcaaagatgc   60
        tggaaggaga tctggtttca aagatgctgc gagctgttct gcagtctcat aagaatggag  120
30      tagcattacc ccggctccaa ggagagtaca gatccttgac tggagactgg atccccttca  180
        aacagctagg tttccctaca ctagaagcct atctgagaag tgtgccagca gtggtcagga  240
        tagagactag tagatctgga gagattacct gctatgccat ggcctgcaca gaaactgcaa  300
        gaattgctca gcttgtggct cgtcaaagga gttctaaaag gaaaaccggg cgtcaagtta  360
        attgtcagat gagagtgaag aaaaccatgc cattttttct agaaggaaaa ccaaaagcaa  420
35      ccctcagaca accaggattt gcttcaaatt tttctgttgg caaaaaacct aatccagcac  480
        cgttaagaga caaaggaaac tctgctggag ttaagcctga tgctgaaatg tctccttata  540
        tgctacacac aactctttgg aaatgaagca ttcaaagaca ttccagtgca aaggcatgtg  600
        accatgtcca ccaacaacag gttagccca aaggcgtccc ttcaaccacc ttttgcagat  660
        gcatcttttc aagaacctnt tacttaaggg aaatgaatgg ataatttaa atcagactgt  720
40      tgaaaaaacc ccatggtcaa gcccttctgg ctttttaccc cttattaaaa anggattgaa  780
        ggttcaaaaa ttcgcattna agggaaattc ttaaccaagg ccttaccaat ggcatttgg  840
        ggatatctaa gctttcccct tttttaccaa ggaggttttt ttaaggaaga cccttattcc  900
        agggaatttt t                                                      911


45      <210> 51
        <211> 781
        <212> DNA
        <213> Homo sapiens


50      <400> 51
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        agtcaactct gttaaaacaa aacttgttaa atatctttca tcaaacataa gcatattctt  120
        ttcaatcccc cacagcagtc agagccatgt agcagagtta agattttttt taagcctact  180
        acattttgtt attgctaaaa aatctgaatt agttgtcaag gtttcagagg cagtcattaa  240
55      ttaacttttg aaagctctat cagatactct gacataaaat catgaatcca ggtatcggtg  300
        tctggcaacg atgtgtccac taagtagacc actactttcc ggtcccaagg gttagcattt  360
        tcaatgactg tctgcaccag tgccaccaga ggtttcttct ccacatgatt tcgaaacacc  420
        atagaagcct cctcagacca ctggttgcac ttcactcctg caagttgagc tgtgactgct  480
        tggaagggca gctttcggaa catgtccact aggggctgta cttttcttat gttgactaat  540
60      tcgtgtttgc cataatccag ctcatacaca gataccagtc cattggtcag gattcctttt  600
        aaaaagcacc ctgtgccact tatttttccac ttttgcagca tacacttggt ctttctccac  660
        tgctatgtgg gcgctcttca gacaccgctg naatatagaa tcatctcttc catcagaacn  720
        ttncaactta tgnatctnct gccangctgg atgaccaaag tagccngggt gacaggcccc  780
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a   781

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        <210> 52
        <211> 734
        <212> DNA
        <213> Homo sapiens


        <400> 52
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        catgggaaaa atcaattatg aaagtttact gccaaatctg tcgaaaggga gataatgaag   120
        aactgcttct tctttgtgat ggctgtgaca aaggctgtca tacctactgc catagaccca   180
        agattacaac aatcccagat ggagactggt tttgtccagc ttgcattgct aaggcaagtg   240
        gtcaaactct aaaaatcaaa aaacttcatg tcaaaggaaa aaagactaat gagtcaaaga   300
        aaggcaagaa ggtaacttta acaggagata ctgaagatga agactctgca tctacaagta   360
        gttcactaaa aagaggaaac aaagacctca agaaaagaaa aatggaggaa aacacttcta   420
        ttaacttgtc aaaacaagaa agttttactt cagttaagaa acctaaaaga gatgactcca   480
        aggacctagc tctttgcagt atgattctga ctgaaatgga aactcatgag gatgcatggc   540
        cttttctact tcctgtaaac ttgaaacttg ttcctggtta taagaaagtt attaagaagc   600
        ctatggattt ttccacaatt agagagaaac taagtagtgg acagtatcca aaccttgaaa   660
        cctttgctct agatgtcagg cttgttttg acactgtgaa acatttaatg gaagatgatt   720
        ctgatatagg caga                                                     734


        <210> 53
        <211> 729
        <212> DNA
        <213> Homo sapiens


        <400> 53
        acaaacgtct tttaaattta tttctgaggc aaggcaaatg ggagggaaat gtttctatga    60
        aaaaatactg tgtgcgtagg aaattgtcac aattttattc cacatggata caaatgatta   120
        tactttaatt taggccctgg tggcttaaaa ttatataaca aaatagaaaa atggaaaact   180
        aatatcccct acaccctgtt tcaaaggcag gcactaccaa gattaaggag acgccacagt   240
        gttggtagag gataattact gtacagactg tatagctatc attaccttca gacgaaaata   300
        aaatgctaca atcctctaag gcatgaacaa taatgtctgc aaacaatata tacacataat   360
        acatatttaa aacaagactt aatataaaca agaatgaaca gtatatacat gtcaattttt   420
        tcactgtttt gaaatacaat ttaactacac aagtgatgca gcaacatata tatataaatg   480
        tacttgtaac tctacagtaa agtttctttt tggtgctttt atagcacatc agtgtaaaca   540
        gtttaacttg gctttgnttt atattttaaa acattccttg natttttcaag atttaaagcc   600
        attttctagg tcttccttt cacaggaaaa cgaagattct ggatgtgggt taatcattaa   660
        ataattcatt aaaattaaat ccattcactt aaaaatttaa cttccaangt taaaaaatga   720
        aaaatagat                                                           729


        <210> 54
        <211> 779
        <212> DNA
        <213> Homo sapiens


        <400> 54
        ggcacgaggg aagccgtccc tagtgaggga gacgtcccgc atcacggtgc ttgaggcgct    60
        gcggcacccc atccaggtca gccggcggct cctcagtcga ccccaggacg cgctggaggg   120
        tgttgtgctc agtcccagcc tggaagcacg ggtgcgcgac atcgccatag caacaaggaa   180
        caccaagaag aaccgacgcc tgtacaggaa catcctgatg tacgggccac caggcaccgg   240
        gaagacgctg tttgccaaga aactcgccct gcactcaggc atggactacg ccatcatgac   300
        aggcggggac gtggcccca tggggcggaa aggcgtgacc gccatgcaca agctctttga   360
        ctgggccaat accagccggc gcggcctcct gctctttgtg gatgaagcgg acgccttcct   420
        tcggaagcga gccaccgaga agataagcga ggacctcagg gccacactga acgccttcct   480
        gtaccgcacg ggccagcaca gcaacaagtt catgctggtc ctggccagca accaaccaga   540
        gcagttcgac tgggccatca atgaccgcat naatgagatg gtccacttcg accttgncag   600
        ggcangaagg aacgggagcg cctggtgaag aatgtatttt nacaagtatg tttcttaagc   660
        ccggncccag aaggaaacac gncctgaaac ttggccccag tttgacttac cgggagggaa   720
        attcttcgga aggtcgcttc ggcttgaccg aagggccttt tcggggcccg ggagaatcg    779


        <210> 55
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21

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      <211> 716
      <212> DNA
      <213> Homo sapiens

5          <400> 55
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      ggccagctga cagtgcggcc tcanacaccc ccgccaggtt ccctcctccc tcctntntca   120
      gggtcaccag tgtgtgaaan atcggggcat gccggccaca gggggaagca gggttcaggc   180
      tgccccacct gggtctggcc ctggcaggcg ccccctcacc tggctctgct gtgggagccg   240
10    agaacaaaga catcacctgc ctggctcctg ctgccccggg ggctnancca gcacccaccc   300
      tnacagnggc ctgggcaggg gctggggtgc aaagcctcac cctcccctg tgagccanac    360
      ggaaaatgca tttcccaana gtgtctcgag gggcaggaag gaggcctgcc cctccctagc   420
      cagngcctac aacaggggt gccctggggg gcaaaacgac cgaccgccac cacaagacat    480
      cctgggggac aaaggccctg ggcacagccc aatccccatc caggagcana tcctaaatgt   540
15    gcaggggccg gcaaggcagg ggtgggangg ggtccgcngc caggcttccg tgagctgtgg   600
      atctccctgn ggacttcang atngggaggg cttcgtnccc acgcccaggc cctttcgctt   660
      nanccagcac aatcttctgn tggtgctgcn ggacagtatt tttcacccgg gtgtcc       716


      <210> 56
20    <211> 748
      <212> DNA
      <213> Homo sapiens


           <400> 56
25    ggcacgagca gaggttgaga agcagacatc attaacacca agagagttag aaataagaag    60
      acgggaggat gagtacagat ttacaaaatt gcttcagatt gctggaatta gcccacatgg   120
      taatgcttta ggagcatcaa tgcagcaaca ggtaaatcaa caaatacctc aggaaaaacg   180
      aggaggtgaa gtattggatt cttctcatga tgacataaaa cttgaaaaaa gtaatatttt   240
      gctgcttgga ccaactgggt caggtaaaac tctgctggca caaaccctag ctaaatgcct   300
30    tgatgtccct tttgctatct gtgactgtac aactttgact caggctggat atgtaggcga   360
      agatattgaa tctgtgattg caaaactact ccaagatgcc aattataatg tggaaaaagc   420
      acaacaagga attgtctttc tggatgaagt agataagatt ggcagtgtgc caggcattca   480
      tcaattacgg gatgtaggtg gagaaggcgt tcagcaaggc ttattaaaac tactagaagg   540
      cacaatagtc aatgttccag aaaagaattc ccgaaagctc cgtggagaaa cagttcaagt   600
35    tgatacaaca aacatcctgt ttgtggcatc tggtgctttc aatgggttta gacagaatca   660
      tcagcnngga gggaaaaatg aaaagtatct tggatttggn acacccatct aatctggggga  720
      aaaaggcnat aaaggcttgc agctgctt                                       748


      <210> 57
40    <211> 718
      <212> DNA
      <213> Homo sapiens


           <400> 57
45    caattttaaa gaatttattt tcccatttgt agagtaacat tattgtaaaa tctacagtta    60
      tcgcaatacc tgcattgctt aaaagaattc ctaagaattt tgttaaagca tatttttttt   120
      aaaaaactga accaaaataa tgtacatttt atctctaaac attgtgtcat taaagtccat   180
      ataacatctt ccgtaaaatc aatgtgatgt tacaattata tacatgatct gattcttctc   240
      ctaaaggctt ctctgaccat gtatgatatc caagatagat ccaatgcctt taatatcaga   300
50    ctgtagagac aattatgatc ctaaacaaaa gaaggaaaag ctgtatatac aagacagcan   360
      tatgacagtt tagctgtttg cancatctgc ttggcggggc catccttctt cttcaactcc   420
      agagtcatac tcctcttcag aggatncttt tgttggagcc cggatgtatc ctggnctcct   480
      tttttncttc tacnacttct ttgnnaacct ccacacatac cgatatcaga attagggact   540
      tcaaacnttg gttcctagta acagcttttc cattatggac cgaaggcctc gtgcaccctg   600
55    ttttcggntc tagtgccaat ctgggctata gcttttcaaa gcatcctcng taacattcag   660
      gtcacactta tccatgctga ataaggcctg gtctggggga ataacagcat ttccgggg     718


      <210> 58
      <211> 857
60    <212> DNA
      <213> Homo sapiens


           <400> 58
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       cagcatcagt aaaatgaaaa gatccagacc cacatctgag ggctctgaca ttgagtccac   120
       tgaaccccaa aagcagtgct caaagaaaaa gaaaaaacgg gacagagttg aagcatctag   180
       cttacctgaa gtcagaacag ggaagaggaa gagaagcagc tctgaagatg cagaatccct   240
    5  agctccccga tcaaaagtaa agaaaattat tcagaaagac atcattaagg aagcatcaga   300
       agcttccaag gaaaatagag atatagaaat ctctactgaa gaggaaaagg atactggaga   360
       tctaaaagat agctctctct tgaaaacaaa aaggaaacat aagaaaaaac ataaagagag   420
       acataaaatg ggagaagaag ttataccatt aagagtgcta tcaaagagcg aatggatgga   480
       tttgaaaaaa gagtatttag cgctacaaaa agctagcatg gcttctttaa aaaaaacaat   540
    10 atcccaaatn aaatcagagt cagaaatgga aacagacagt ggagtacctc aaaacactgg   600
       aatgaaaaat gaaaaaacag ccaacaggga agagtgtcgc acccaggaga aagttaatgc   660
       aacaggacca cagttcgtga gtggagtgat tgtgaagatc attagcacag agcctctcct   720
       ggcaggaaac aagtccggga tctttgggag caatctcaga aagttttttt atgttgattt   780
       gctagaangg gaaccanaat ggcctgctag attaaaaact nctgaggatg ctcaagcngt   840
    15 aataaatgcc tttcccg                                                   857


          <210> 59
          <211> 700
          <212> DNA
    20    <213> Homo sapiens


          <400> 59
       aatgttcaaa acacatttat ttactaaatc acctgacact gacatctaag ataatttcaa    60
       caaataaaat gtttaagaaa aattgtggta tacatcatat ttgtctctag aaaaaagtct   120
    25 tatttacaag ttgaggaaca aagatatttc ttttaattaa aaacacatta attatgcagt   180
       gctaccataa taaaagtgaa tctcccaaga acagctcaag tatcttgtga agtattaaga   240
       ggtgaactgt tttttttttc aatcatattc agaaaatctt atatgtttac tcgcttgttg   300
       agtctttgcc agtctaatct tttcagcttt ggtgattaac ttttcagngc ctctttttctt   360
       ttcccgaggc tgattaagtt ttgcctgtct atcaaccaaa atcttctgcc aatacctttg   420
    30 ttcgtgatca ccagaaagga tctcgagttt ccagcagtgt ttcttgntaa tttctgtata   480
       ggcatttatt actgcttgag catcctcagg agtttaaat ctagcatggc attctgtatc   540
       ccctctagc aaatcaacct aaagaacttc tgagaatgct gccaaagtat cccggacttg   600
       tttcctgcca ngtanaggct ctgngctaat gaacttcaca atcctccact tcacgaactt   660
       gggggccctg ttgcattaac ctttctccct gggggccgaa                         700
    35

          <210> 60
          <211> 1889
          <212> DNA
          <213> Homo sapiens
    40

          <400> 60
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       gggcagctgg tggtgaatcc agaagctctg aagatcctat ctgcaattac gcagcctgtg   120
       gtggtggtgg cgattgtggg cctctatcgc acaggcaaat cctacctgat gaacaagctg   180
    45 gctgggaaga aaaacggctt ctctctaggc tccacagtga agtctcacac caagggaatc   240
       tggatgtggt gtgtgcctca tcccaagaag ccagaacaca ccctagttct gctcgacact   300
       gagggcctgg agatatagaa gaagggtgac aatgagaatg actcctggat ctttgccttg   360
       gccatcctcc tgagcagcac cttcgtgtac aatagcatgg gaaccatcaa ccagcaggcc   420
       atggaccaac ttcactatgt gacagagctg acagatcgaa tcaaggcaaa ctcctcacct   480
    50 ggtaacaatt ctgtagacga ctcagctgac tttgtgagct tttttccagc atttgtgtgg   540
       actctcagag atttcaccct ggaactggaa gtagatggag aacccatcac tgctgatgac   600
       tacttggagc tttcgctaaa gctaagaaaa ggtactgata agaaaagtaa aagctttaat   660
       gatcctcggt tgtgcatccg aaagttcttc cccaagagga agtgcttcgt cttcgattgg   720
       cccgctccta agaagtacct tgctcaccta gagcagctaa aggaggaaga gctgaaccct   780
    55 gatttcatag aacaagttgc agaattttgt tcctacatcc tcagccattc caatgtcaag   840
       actctttcag gtggcattgc agtcaatggg cctcgtctag agagcctggt gctgacctac   900
       gtcaatgcca tcagcagtgg ggatctaccc tgcatggaga acgcagtcct ggccttggcc   960
       cagatagaga actcagccgc agtggaaaag gctattgccc actatgaaca gcagatgggc  1020
       cagaaggtgc agctgcccac ggaaaccctc caggagctgc tggacctgca cagggacagt  1080
    60 gagagagagg ccattgaagt cttcatgaag aactctttca aggatgtgga ccaaatgttc  1140
       cagaggaaat tagggcccca gttggaagca aggcgagatg acttttgtaa gcagaattcc  1200
       aaagcatcat cagattgttg catggcttta cttcaggata tatttggccc tttagaagaa  1260
       gatgtcaagc agggaacatt ttctaaacca ggaggttacc gtctctttac tcagaagctg  1320
```

```
caggagctga agaataagta ctaccaggtg ccaaggaagg ggatacaggc caaagaggtg    1380
ctgaaaaaat atttggagtc caaggaggat gtggctgatg cacttctaca gactgatcag    1440
tcactctcag aaaaggaaaa agcgattgaa gtggaacgta taaaggctga atctgcagaa    1500
gctgcaaaga aaatgttgga ggaaatacaa aagaagaatg aggagatgat ggaacagaaa    1560
gagaagagtt atcaggaaca tgtgaaacaa ttgactgaga agatggagag ggacagggcc    1620
cagttaatgg cagagcaaga gaagaccctc gctcttaaac ttcaggaaca ggaacgcctt    1680
ctcaaggagg gattcgagaa tgagagcaag agacttcaaa aagacatatg ggatatccag    1740
atgagaagca aatcattgga gccaatatgt aacatactct aaaagtccaa ggagcaaaat    1800
ttgcctgtcc agctccctct ccccaagaaa caacatgaat gagcaacttc agagtgtcaa    1860
acaactgcca ttaaacttaa ctcaaaatc                                      1889
```

```
        <210> 61
        <211> 739
        <212> DNA
        <213> Homo sapiens


        <400> 61
        ccgacggccc gctgctggcc tccgtgacgc ngtctnctcc gcgcctcgcg gcatggcgtc    60
        ggaggggccg ngggagcccg aaagcgaggg catcaagtta tcaggcatat gtcaaaccat    120
        ttgtccccag atttgccggg ctcaatgtgg catggttaga gtcctcagaa gcatgtgtct    180
        tccccagctc tgcagccaca tactatccgt ttgttcagga accaccagtg acagaaatgt    240
        ntactcagtg cctggctccc agtatcttta taaccaaccc agttgttacc gaggtttтca    300
        aacagngaag catcgaaatg agaacacatg ccctctccca caagaaatga aagctctgtt    360
        taagaagaaa acctntgatg agaaaaaaac gtatgatcag caaaagtttg acagtgaaag    420
        ggctgatgga actatatcat ctgagataaa atcagctaga ggttcacatc atttgtccat    480
        ttacgctgag aatagtttga aatcagatgg ttaccataag cgaacagaca ggaaatccag    540
        aatcatttgc aaaaaatgga tctacctcca aacctgagtt tgaatttacc acactggact    600
        tttcctgaac tgcaangngc aagagaaaca atatgtcata agatccagaa agcaaccccca   660
        agtgggggac ctggnccacn tntggctntt acccganatt tcttttttta agaanaagta    720
        ggnnaaaccc agctgccgt                                                 739
```

```
        <210> 62
        <211> 665
        <212> DNA
        <213> Homo sapiens


        <400> 62
        gacctttaac aggctccgca gcactgaacg cctgcagaca ctgcttcatg tgccctttaa    60
        tgctgatcaa tttccagatt caacagttac acaaattaca ttgtcatgaa aaacagaaga    120
        aaaagccсca aagtcttttt cagacctccc ctccttaccc aaaatacaga cacacaggca    180
        agaactctca taaattcaaa ttcatcattt gagaggttga agcctccaag gattcttcta    240
        gctccagggt acatccactg tatgcttcca gatgtttttt ccagatttca atgtagtgtg    300
        gctcttcttt ttctttcagg gctggggggc catcttctgc agggcagctg gggccctgtg    360
        tgggtaggct gggaggtgcc tgaggcctgg gctctcccac cagctcctgc tgcacattct    420
        ccagcatggc ttgactggat ctttctggta catacggnct tggaaacgga ccanttcttt    480
        gagtagggtc ggtaacacaa gcatccactt tttttactaa agcatctggc tgcagtnatc    540
        cctgaatctg cggctggtgg atcttaggga aaggggtgt gattggganc aaagggggga     600
        ggcctctgng ttcctttgga gctctggggc ctggnggctt tttcaaactt tggcctcaac    660
        cсgaa                                                               665
```

```
        <210> 63
        <211> 1003
        <212> DNA
        <213> Homo sapiens


        <400> 63
        ccattattgt atataaagaa cattgtgact tttaatatta gcatttttgc tttcaacagc    60
        aattagcaat ctcttggttt gctgtttggt aaagcatcgg ttaatgaggt catctagttt    120
        aaaatcccag ctacttgaaa ataacaggga ggaggtcaaa tctatcattt catgttatat    180
        tctctgctct cttttcagtt ctctaaagaa aagatatctt tgttatccac aataagtcat    240
        tacgacccgt tactggccct ctgtgtttta ctaccacctc aagatacagt taggttctct    300
        cttgctgaag tactgaaata ggataattca tctaataaac aaacaaacaa aaaaaacaac    360
        tttgagcatc tgaggatgag gaattggttt cgcgttggtt gtgttgtctt tcctccgaca    420
```

```
gttctgagtt cacgtctagc gaggggttgt ctctatggtg gaaggggttc ccggggtggt    480
tgacctcgga gtggctgctg gtggtgtgtc catcgggctc ccagccccgc tgttgggcgt    540
gacaaaanga actgactgca ggtgtgtctc cctgctggtg ggccctgcan ggtctgtcca    600
caaaaggtga tggngcttct cccaatcttt ggnctggcna aaatggancc cccagttntc    660
cgggctgtgg ttacaagccc ctggcanggt ttcacctcgc ttttacnggn cnccaatttt    720
caaacaaacn tttgncttgg aaaccccccc ggcggattgg aaaaacctgg ncaagtggcg    780
gttccccccc ccccttgcc gtttngggcc ttnggggaac cggngccctc cattttttgg    840
gccccctttg ngtggggaaa cnttgtcggg gggctttttcc cntcccccct taaaaaaccn    900
ggcttttttgg aanctcccnt aattggncng ggnccttttan ccttttttgga cggcccccccc    960
aaatttttttt tccaaancttt ctttgggccc ttttttcaaan ccc                   1003
```

```
<210> 64
<211> 765
<212> DNA
<213> Homo sapiens
```

```
<400> 64
gtgaactcca ctttgacaat tgaagaattt cattccaaac tgcaagaagc tactaacttc    60
ccactgagac cttttgtcat cccattttttg aaggccaact tgcccctgct gcagcgtgag   120
ctcctccact gcgcaagact ggccaaacag aaccctgccc agtacctcgc ccagcatgaa    180
cagctgcttc tggatgccag caccacctca cctgttgact cctcagagct gcttctcgat    240
gtgaacgaaa acgggaagag gcgaactcca gacagaacca aagaaaatgg ctttgacaga    300
gagcctttgc actcagaaca tccaagcaag cgaccatgca ctattagccc aggccagcgg    360
tacaagtcca ataacggct tatcctacca gccaatggc ctgcctcacc ctaccccacc     420
tccacctnag cattaccgtt tggatgatat ggccattgcc caccactaca gggactccta    480
tcgacacccc agccacaggg gacctcangg acagaaanag acctatgggg ttgcatggca    540
cacgtcaaga agaaatgatt gatcccagac taacagactg agaatgggcc tgnaagannng  600
gaaacatnnt tgaccattct ggttaaactg cataaatngg acatgggnng naaaaaaaca   660
aagggcgatc tttttacccg tacctaaang gcgggnggtt caaanaaanc anaacccggg   720
ggaagaaatt tnaatttcnt nggaatncgg ggggtacca gtgga                    765
```

```
<210> 65
<211> 566
<212> DNA
<213> Homo sapiens
```

```
<400> 65
aaggaccaag gccaagaagg acaaagccca aagganntnt gnanctcncn nccgnggctn    60
tgctccccac tctgagagtg atctaccaga gcaggaagag gagattctgg gatctgatga    120
tgatgagcaa gaagatccta atgattattg taaaggaggt tatcatcttg tgaaaattgg    180
agatctattc aatgggagat accatgtgat ccgaaagtta ggctggggac acttttcaac    240
agtatggtta tcatgggata ttcaggggaa gaaatttgtg gcaatgaaag tngttaaaag    300
tgctgaacat tacactgaaa cagcactaga tgaaatccng ttgctgaagt cagttcgcaa    360
ttcagaccct aatgatccaa atagagaaat ggttgttcaa ctactagatg actttaaaat    420
atcaggagtt aatggaacac atatctgcat ggtatttgaa gttttggggc atcatctgct    480
caagtggatc atcaaatcca attatnaggg gcttccactg ccttgtgtna aaaaaattat   540
tcancnagtg tttacagggt nttgat                                        566
```

```
<210> 66
<211> 445
<212> DNA
<213> Homo sapiens
```

```
<400> 66
gangcagccc ggacncagca agtttaatgt ctntgntgtn catanaatta anaccctttc    60
cccctcctca tccttatgct ggcaatagga tatgcnctaa aaaatttgac tnttanagtc    120
aatgaataaa aggatgggct catacacctt catagctntt ttcaaaaagg atgcttataa    180
tttaaaggat gtcctaatgg gaaggaaagg tncngggcaa gaggctgttt cacattttttan   240
tccattagtc tttggcanag cccaaccaag gccaaattca cctaggatgc ccaatggctg    300
tggggatntc cncagggtca agtaagcaaa cccaaatgaa catgttggat taaaaaaaaa    360
acaagatctn aaaactttttg aaggaanagc ttcccctgaa aagggaagag gaaaatgctt    420
gaaggggaag ggcggagggt caatg                                         445
```

<210> 67
<211> 976
<212> DNA
<213> Homo sapiens

<400> 67

```
ntcgcgcgcc tgcaggtcga cactagtgga tccaaagaga gtttgcaaag gaatttttgga    60
atatcttaca gtggcagagg tggtggagac tatggaagat ttggtcactt acacaaagaa   120
tcttgggcca ggaatgacta agatggccaa gatgattgac gagagacagc aggagctcac   180
tcaccaggag caccgagtga tgttggtgaa ctcgatgaac accgtgaaag agttgctgcc   240
agttctcatt tcagctatga agattttttgt aacaactaaa aactcaaaaa accaaggcat   300
agaggaagct ttaaaaaatc gcaattttac tgtagaaaaa atgagtgctg aaattaatga   360
gataattcgt gtgttacaac tcacctcttg ggatgaagat gcctgggcca gcaaggacac   420
tgaagccatg aagagagcat tggcctccat agactccaaa ctgaaccagg ccaaaggttg   480
gctccgtgac cctagtgcct ccccagggga tgctggtgag caggccatca gacagatctt   540
agatgaagct ggaaaagttg gtgaactctg tgcaggcaaa aaacgcaggg agantctggg   600
gaacttgcaa aatgctnggg cagatgactg tcaaagtggc ttgacctccg tgccaagagg   660
acaaggatcc ttacccggng ggccatgcca naaaagctna acanggtatn ttcaaggtct   720
tggantgtgc tccccagcaa aagnggaaaa agccagcttc caaagctggg aaagccttgc   780
ccacttnaaa ccaaaacatt tgcnaaanaa anaaacgatg cttgtttaaa actggnttgn   840
ganantccaa atggggggnc cgggaaggga aaaaaacaaa tttcnagggc ttttggcttg   900
aanctcngaa aataccnaat tntttggngg ntnctaaaaa aaaaaaagga natttttcctt   960
ccttngggga aaaatt                                                   976
```

<210> 68
<211> 487
<212> DNA
<213> Homo sapiens

<400> 68

```
aatttgcttc actgtgtctc gagcactgat attggagaaa agcacatccg gcataaagtg    60
taaaccagtg tctcaaacca ctggaagaac cgggagagca aacatgattt ttcttatttc   120
ctctaagtaa tctttctttta gtaaaacaac aagtgatctt tggcatagat tcatacttta   180
aaggcattaa tattgcattt atatcaggca agcaactata caaatatgct gagggccttg   240
aaaataatca tcctcattat aaaggaaata gtgaaagcct gagtgtaaag gaccaactta   300
agttgtacac attcgatgtt gggaactaac acacagcgat gggtgggag gaaggatgtt   360
caggcaaggt tcttactcct ttactcatct ggttctggct ttgggaaaaa ataaggtttc   420
atgtgctggg aaatacttag cagtaataag taccaaaaag gaaacactgn cctctcattt   480
tgcctag                                                            487
```

<210> 69
<211> 826
<212> DNA
<213> Homo sapiens

<400> 69

```
gcaaaaactt gtgatagaaa attttgatga tgagcagatt tggcaacaac tggaattgca    60
aaatgaacca attttacaat actttcagaa tgcagttagt gaaacaatta atgatgaaga   120
tatcagtctt ctcccagaga gtgaagaaca ggaacgtgaa gaggatggtt cagagataga   180
ggctgatgac aaggaggacc tagaagattt agaggaggag gaagtgtccg acatgggtaa   240
tgatgatcct gaaatggggtg agagagctga aaactcaagc aaatctgatc tgaggaaaag   300
ccccgttttc agtgatgagg attctgacct tgactttgat atcagcaaat tggaacagca   360
gagcaaggtg caaaacaaag gacagggaaa accaagagaa aagtccatag tagatgataa   420
attcttcaaa ctctctgaaa tggaggccta tttagaaaac atagaaaaag aagaggaacc   480
gaaaagatga taatgatgag gaggaggaag atattgattt ttttgaagat attgattctg   540
atgaagatga aggggggactg tttggaagta aaaaacttaa gtcaggtaaa agttccagaa   600
atctgaaata caaagatttt tttgatccag tttgaaaagt gatgaagacc ntacaaatgt   660
tcatgatgat gagctggatt caacccaaga aaatgatgaa atttgctgaa gaagaagcng   720
aagaacttag ttttttcgga aaccggttga agatgaatga ccttcaagaa aaatgaagan   780
ccnttaacca nccttaagga aagcttggaa aagaagngan cctttg                  826
```

<210> 70
<211> 1015

2c

<212> DNA
<213> Homo sapiens

<400> 70

```
ggcntcattg atttgcattt ttacttgatc ttggaattna aaaaaaaatg cttgnnaggn      60
ctttaaggnc ntgnctttac cttcatcctt tatnaaggaa gctttgccng ttttggncan     120
ctgttttaac ttntcccaan cnncnggttt gctggatttc cctgcttgan ctacnctggt     180
ntttttnaanc ngntttctcc ncttctcctt ntnttttatt ttcannccn tttganattt     240
cttttttccnt cncncncggt tcttggctgg agcnggtttt tcagcnnctg ntttttatntc    300
nccnncttta ttttttcnccn tgancnccnc nggggccnng aaagctgcat nactaacnct     360
cactggggct ncttccncca tggntatggn tgggaaattt gacncaactt taatctntgg     420
gcaggcggnt tagggataaa ggggaagttg anagggcctc cnatttttaaa naanagggaa     480
ccntcatctt ctgaatttct ncatgnccgg attttttctt ctggnggttt tggcgggggga     540
gttgaggnac nccngntcaa aaatttcnca aggngcaaat ttactctttt tatggggcna     600
anggnaaacc cctttatat tcntatgcnn ccnttttagg gtttttttnc gactacataa     660
ccccagccng acnttttct ttggnaaaag aaatttccca ttgaangggg ggttctttt      720
aatacaaggg ccctnccgca aattgggaaa agggngggn ttntcnaaaa gggnnttntt      780
gncccttttg ggcgggacct tccccngaag ggccngggtt tttttaanca cttttttttn    840
aaaagaaant ttcantanct ttncccgnct tttnaangng gttaactntc aaatttttt     900
tattnaaacc nntttttagt tcccttattt gggaaanaag gccttttnaa cttttatgg     960
ggtatnggnc attttgang ggaatttttt tcgttncaaa ataaanttg ttttt          1015
```

<210> 71
<211> 1140
<212> DNA
<213> Homo sapiens

<400> 71

```
tnccgcgcct gcaggtcgac actagtggat ccaaagaatt cggcaccaga ttttgtcacg      60
tggggaccca gctgtacata tgtggataag ctgattaatg gttttgcaac tgtaatagta     120
gctgtatcgt tctaatgcag acattggatt tggtgactgt ctcattgtgc catgaggtaa     180
atgtaatgtt tcaggcattc tgcttgcaaa aaaatctatc atgtgctttt ctagatgtct     240
ctggttctat agtgcaaatg cttttattag ccaataggaa ttttaaaata acatggaact     300
tacacaaaag gctttttcatg tgccttactt ttttaaaaag gagtttattg tattcattgg     360
aatatgtgac gtaagcaata aagggaatgt tagacgtgtt aaaaaaaaa acanaaaaca     420
nnaaaacaaa aaaatcctc gaaagtcttt tagagcggcc gnggccnat ngattttcc      480
ccccgggtgg ggtaccaggt aagtgnnccc antttcccct ataggagcc gtattacaat     540
tcactggccg tcgtttaca acgnncgnga cttggnaaaa accntggcgt tacccaactt     600
taatcgcctt tgnaaacatc cccctttcgc cagctgggnn taanaacgaa aaaggccccc     660
ccgaatcncc tttccaaaca anttgcncca ccntggatng ggnaatggga aannccaatt     720
tttaaagggg tntaatgggg gtnaaacnnc cggantncna attggntngg gggnttttaa     780
aaatcancaa cccnaagggc ttnntttang gcccccnnag tcccncagn tntggttaat     840
ggncnttaan nccccctnc cnaattttgt aaaagggttt ttcttggttt aaaaaaancc     900
tcncanccnt tccctngaa cctganaaaa ttaaaaaga naggcccntt ggnngtgtgt     960
aaanttngtt tttnccccctt ntaaagggtc cccaaaaaan cttaccttcc aaattttccc    1020
aaaataaann ttttttttccn gcntttcnat gnggggggng cccaccacac aaaggatttt    1080
tacccnanat ntttnccgna nttttttaa aaaccntaaa atttgtnnan acacnttttt     1140
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<210> 72
<211> 588
<212> DNA
<213> Homo sapiens

<400> 72

```
acacgtntaa cattcccttt attgcttacg tcncatattc caatgaatac aataaactcc      60
tttttaaaaa agtaaggcnc atgaaaagcc ttttgngtaa gttccatgtt attttaaaat     120
tcctatnggc taataaaagc ntttgcacta tanaaccnga nacatntana aaagcncatg     180
atngattttt ttgcaagcan aatgcctgaa acattacatt taccttatgg cacaatgaga     240
cagtnaccaa atccaatgtn tgcattanaa cgatacagct acttttacag nngcgaaacc     300
attaattagn ttatccncat atgtacagnt gggtccccac gtgacaaaat ctggngccga     360
attntttgga tccnctaatg tcgaccctgc aggcgcncga ngctccaagc ttttgntccc     420
ctttttannng agggttnatt ttcnagcttg gcntnatnaa ggggaatagc ttgnttctng     480
ngngaaantg ttattcnntc nccaattnnc acncnataat accaagcccg ggnagttata     540
```

27

```
aaagtggtat aanccnnggg gtgccctaat tgnggtganc ttannctc                588
```

```
        <210> 73
        <211> 526
        <212> DNA
        <213> Homo sapiens


        <400> 73
        cccacttctc gctgctcatg ccgctgggac tggggcggcg gaaaaaggcg ccccctctag    60
        tggaaaatga ggaggctgag ccaggccgtg gagggctggg cgtggggggag ccaggccctc   120
        tgggcggagg tgggtcgggg gnnnaacnnn nnanatnnnn cngnnngnnn nncctnnnnt   180
        tntanangnn ttnnnngata nganctnctn ttangacgag gatnnataat nctaatgcta   240
        naactcctnc tanctngnnn ggaattgatc ntangatggc ntatgcaaat angaagtntc   300
        attctggntt gatgnntggn ggcntaacta nngnattanc angngnnaan tttttctggg   360
        tntnctanga nattnngana aaatannggc ttngnannct anggcnatna nntntnatna   420
        cnananccta nnnngnnttt ntnnnganaa gtntngnnng gaatgggatt ttgnctgcnt   480
        nngangntan gcntncngng gntnttngac cntttcnnga angaat                 526


        <210> 74
        <211> 608
        <212> DNA
        <213> Homo sapiens


        <400> 74
        ggcagattga ttctttatgt tcaagacagc aaattcagat acaaaaaccc accgccatcg    60
        tccctccctc cctcctgctc tgggccaggg atgggcctgg aaggaaaaat tggaggtggg   120
        gaggaggttg cggggttcac agcaaactcn tgtcaaatgc ggaggtaaca ggctncacag   180
        ggaggggggct cctctcagga ggggtgaggg cattattgca tttgctgggg ggaaggacaa   240
        ccctctcccc tgtattccct gcgtcaggaa actaggaagg ncatgacccc caaacagaac   300
        ccaaggcccc agggagacag agggaccagt ttggcagctg atggtggaaa gtggtggagg   360
        cggggggtggc cccccaattt ggctgatccc tcccctccct gtgcctgacc caactgaggt   420
        aggtggggaa cagggcacag ggggggccggg gaccccggcc agactgggaa ccagggaggg   480
        gatggtccca ttggagcggg gcaagggggcc tggcccacct ccctnccatt gtccttgggc   540
        tgcttancta gctcagctgg aggctcnggt cctgantnaa ngtccctgct ggggggccccc   600
        ccaggtgc                                                          608


        <210> 75
        <211> 891
        <212> DNA
        <213> Homo sapiens


        <400> 75
        gtctggtgcc agcagccgcg gtaattccag ctccaatagc gtatattaaa gttgctgcag    60
        ttaaaaagct cgtagttgga tcttgggagc gggcgggcgg tccgccgcga ggcgagccac   120
        cgcccgtccc cgcccccttgc ctctcggcgc ccccctcgatg ctcttagctg agtgtcccgc   180
        ggggcccgaa gcgtttactt tgaaaaaatt agagtgttca aagcaggccc gagccgcctg   240
        gataccgcag ctaggaataa tggaatagga ccgcggttct attttgttgg ttttcggaac   300
        tgaggccatg attaagaggg acggccgggg gcattcgtat tgcgccgcta gaggtgaaat   360
        tcttggaccg cgcaagacg gaccagagcg aaagcatttg ccaagaatgt tttcattaat   420
        caagaacgaa agtcggaggt cgaagacga tcagataccg tcgtagttcc gaccataaac   480
        gatgccgacc ggcgatgcgg cggcgttatt cccatgaccc gccgggcagc ttccccgaac   540
        cggtgacggt gtcgtggaac taagcccctg accagcggcg tgcacaccttt nccgggtgtc   600
        ctacaagtct caggactcta ttcctcanca acgtggtgac cgtgcccttc anagcttggg   660
        cacccaaacc tacatntgca acgtgaatac aaaccagca acaccaangn gggcaagaaa   720
        agttgaaccc caatnttgtg aaaaaaactn acaacatgcc cacccgggcc cagaacctga   780
        antcttgggg gggaccgtaa gtttttctttt nccccaaaac ccaaggacac ccttntgatt   840
        tcccggaccc tgaggtacat tcctngtggn ggaccnaacc nccaaaacct t           891


        <210> 76
        <211> 1046
        <212> DNA
        <213> Homo sapiens
```

<400> 76
```
ccncngggnc ccnnggcang cnnggggggct tttttttccnt ncnggncccc cggnaanatn      60
nccccngggg gangggccan cccnccnncc nccnccataa anccccgggg ggggggggtt     120
ngccggcctt ccntnnttt tccccggaaa cggggnnggg nnttttttgag gnaaggggnt     180
ggncaaaccc tntcctttan ggggnnnnaa aaaattttcc cntggngccc cnnttttttc     240
cccgggggngn tntttnnaaa nnaaaaaggn ccnngggncn cncagcnggg ngggggggtt     300
ttantttttt nccngcnngc ctttgtnnnc ccactcnggg ngatgtnggt ngnanaaaac     360
nnttttccna ngcgggggaa ggcncancct tttttngnnn cncacccca aagggggggn     420
ggggnggncc cntnggggt ncgggggnng nccttttggt tttnaaanan gnttttttan     480
nnngggggct ngggnggnnt ttttgggnnc cccatnnatt tntnccntnn nccanttaac     540
cannttgtgg nccnggnnng ggnaannccc ttcccnccgg gnacnggcnn ttgnctcntn     600
ccccncnggct tttttttgg tttnagacct nccgcccccc cccaccnnag ggaatnancc     660
ntggggtttt tggggtnncc ccccccccn ttttccccgg ggggcngga aaanacangg     720
gcnntttntt ttggggggaa anaaaanaac cgcccccnaa aaaaatgntt tgccccgggg     780
gccttanatt ttncccanat tgggcccntt ttttttcccn tngngtgtgn ggggtgggaa     840
cccngcaaaa anggnnnggc ccctttttggg ggcccccccc cctttngggg gcnatgnttt     900
ggccngggcc cccngaagnt ccccnggng gnccccnaaa aaaacccccc ttttaaaccc     960
cgggggaaga aaaaccnccg ggnggggggn ntttgngnn nnangggaaa ttttccnccc    1020
cctntttta anaacctccc nctcct                                         1046
```

<210> 77
<211> 636
<212> DNA
<213> Homo sapiens

<400> 77
```
ggaagatggc ggctgggttc aaaaccgtgg aacctntgga gtattacagg agatttctga      60
aagagaactg ccgtcctgat ggaagagaac ttggtgaatt cagaaccaca actgtcaaca     120
tcggttcaat tagtaccgca gatggttctg cttttagtgaa gttgggaaat nctacantna     180
tctgtggagt taaagcagaa tttgcagcac catcaacaga tgcccctgat aaaggatacg     240
ttgttcctaa tgtggatcta ccacccctgt gttcatcgag attccggtct ggacctcctg     300
gagaagaggc ccaagtggct agccaattca ttgcagatgt cattgaaaat tcacagataa     360
ttcagaaaga ggacttatgc atttctccag gaaagcttgt ctgggttcta tactgtgatc     420
tcatttgcct cgactacgat ggaaacattt tggatgcctg cacatttnct ttgctagcgg     480
ctttaaaaaa tgtacaagtt gccttgaagt tactataaat gaagaaactg ctttagccag     540
aagttaattt aaagnaagaa aagttatttg aatattaaga actcatncag ttggcaactt     600
cccttttgct ggggttttgg atgacacttt tggctt                              636
```

<210> 78
<211> 687
<212> DNA
<213> Homo sapiens

<400> 78
```
cagaagaatg tagtttgata tttatttagt ataaacgtt tgtgcacagt gttaacaaat      60
acaattttta caaatctgtt ttgaaaatgt ggtggctgtt tatttgggtt tcatactctt     120
aattacttca tccatcagtt ttttaacttc tttgtgtctt gtaactgctc ggctcataca     180
gtcctgaagt ttagctccag ttagcccact tccacctggt ttgtgaanac aacanagttt     240
gccttcctca tccattacta ttgttaaggt tcctgttgcc agatgttcct cctctccagt     300
agggtcaact ataagcaaag tgtcatcaaa cacagcaaag gaagttgcaa ctggatgagt     360
tctaatattc aaataacttt tcttctttaa attaacttct gctaaagcag tttcttcatt     420
tatagtaact tcaggcaact gtcatttttt aaagccgcta caaagcaaat gtgcaggcat     480
ccaaaatgtt tccatcgtag tcgaggcaaa tgagatcaca gtatagaacc caaacaagct     540
ttcctggaaa aatgcataag tccntctttc tgaaatatct ggngaatttt caatngacat     600
ctgcaatgga attggctagc cccttgggcc tttctccnga nggccaaccg ggaatctnat     660
gaaacccagg ggggggagat ccncatt                                        687
```

<210> 79
<211> 1235
<212> DNA
<213> Homo sapiens

<400> 79

```
aacgctggan ctcgcgcgcc tgcaggtcga cactagtgga tccaaagaat tcggnncgag      60
gatgaacgan nttntggcag agtcngctaa ngaactccct caagtttcat ttgtgaagcc     120
ggaagctgaa ggtgttcctg nagtatntga aaaatatgag attagctctg tnnccacttt     180
nntgtttttnn nagaattctn acaaaatcca ccgattgtat ggcgctgcat gcccnaaagn    240
nnnccctaan tgacnttngn ctgtgcatct ctcggttcct tcntacccag cgctaatgaa     300
catcttanag aagatctcaa ccttcgcttg aagaanttga ctcatgctgc cccctgcatg     360
ctgctatnaa aggaactcct cagaaccacg ctgtggtttc ancangcaga tggnggaaat     420
tcttcacana cataatatnc agtttancag tttttgnnnt catntcagat gaaaaggttn     480
nacagggact taaanccttat nccagctggn cnncctaanc nnanctctan gnttntggan    540
agctnatang aggactnnct ttnnttaagg agcgngaagc atnttnnagn aacttttnatt    600
ccaattnggn nccnaaancn ncccaanttt tntngaaaag ctcaaacgtg cttnacnaat     660
aaaagctttc cttgtggnag cttttttttt gnaaacggga ncnanacngg gaaccccaaa     720
attgtggnat tttcnttaaa accaaatttt cgtggaaana tnctaaaant nggtcctggn     780
nggttngnaa cnttgaaaan antttcnnan tnttnggggga gggaaggaaa taangttcng     840
accanggggt taaanaagct tcantnaaaa tnnggnccaa aantacnncn tcaangttnn     900
tnttttttaa anggggggnaa ctttggtggg gnnaggantc gggnnnnttgn gggaaaggnn    960
nccttaaana aaaangnggg anatangccn ccnttttcnc gggangggga aaaattatna    1020
nattttttaa ncntcgggggn gcncccnana ttttnnggggg ggnggggcttt tntacccngn  1080
ccnnttanaa agaaanggcc acctantntt nggtcnattn cnngccntaa accttttttgc    1140
nngtccaaaa aaaaaaaatt ntggcncnta tntctttcgg gaaaaaaagn gacncccagn    1200
ggtnnnnccccc cnncttttccc cnctggggtg gcatn                           1235
```

```
        <210> 80
        <211> 733
        <212> DNA
        <213> Homo sapiens

        <400> 80
accagttaat tttttatttt ttgtagatat gaggtttcgc catgttgctc aggctggtct      60
caagctccgg agctcaagca acccgcctgc ctccgcctcc caaagtgctg ggatcacaag     120
cacgagccat tgtgcccagc ctggcactta atttgtgaaa gccacaccat ttctaacagg     180
aacataaaaa taccaggtca tttcanaagc cccagacttg ggcaactcca ctcactaact     240
tgcagcgtgc tacctcaaag ccagtgtggc acgaggcttc aagcacagca ctggggctgc     300
gctgacagat cctggttcaa atcccagctc ccagccctag aaccttacag tgacctaagt     360
gcaccaagac tccctcaacg tgttctgctg cagccagtga gtcagtgcac gtgcccggcc     420
catgagctaa ctgaactcat ggcttctgaa tctgaatgtc tctaaatatc agacaaagct     480
gtatgaaaaa agcccccaag actctgaaac cagatgggat gccagttata aaacttgtct     540
tttnaaggta cccatcctgg tgaatgaggc atcaggaaac ttctgcagct ttgngtctga     600
ttcaaaaaang ggggatacct tttccttanc catnacaang gggcacaagn ccgacacttc     660
tggtaaattn caacactttt ggggangctt gaggcaagga aaaccttatt tttttttccaa   720
gaaaataaaa aaa                                                         733
```

```
        <210> 81
        <211> 1058
        <212> DNA
        <213> Homo sapiens

        <400> 81
ggngctcgcg cgcctgcagg tcgacactag tggatccaaa gttgaaggct aaggatcaag      60
ggaagcctga agtgggagaa tatgcgaaac tggagaagat caatgctgag cagcagctca     120
aaattcagga gctccaagag aaactggaga aggctgtaaa agccagcacg gaggccaccg     180
agctgctgca gaatatccgc caggcaagg agcgagccga gagggagctg gagaagctgc     240
agaaccgaga ggattcttct gaaggcatca gaaagaagct ggtggaagct gaggaacgcc     300
gccattctct ggagaacaag gtaaagagac tagagacat ggagcgtaga gaaaacagac     360
tgaaggatga catccagaca aaatcccaac agatccagca gatggctgat aaaattctgg     420
agctcgaaga gaaacatcgg gaggcccaag tctcagccca gcacctagaa gtgcacctga     480
aacagaaaga gcagcactat gaggaaaaga ttaaagtgtt ggacaatcag ataaagaaag     540
acctggctga caaggagaca ctggagaaca tgatgcagag acacgaggag gaggcccatg     600
agaanggcaa aattcttcag cgaacagaag gcgatgatca atgctatgga ttccaagatc     660
agatccctgg aacagangat tgtggaactg tctgaagccc ataaacttgc acaaatagca     720
gtcttttttcc caaaggacat tgaanggccc aagaagagat gatttctgaa ctcaggccac     780
aagaaattta cctggaaaca cagctgggaa agtttggagg cccaaaaccn aaactggagg     840
acnactgggg aanataaccc ccaagaaccc agtgacaaaa atcggttgtt ggactggaga    900
```

```
caaaattggg ggaggcagtn ttancncnan ggggccnaac ttgggcttaa cgccagttaa    960
aaaaatttaa gttttcttgn ggaaccngat tacaattnna nccttcaggt ttacnggggg   1020
gcctggaaaa cccntttncn ggcgaaaaaa aacttgga                           1058
```

<210> 82
<211> 713
<212> DNA
<213> Homo sapiens

<400> 82
```
acgaatataa agtttcttgt aaatatgtac agtcttttga gctagttcta tatagcagaa     60
agcagttcac agatganaca cacaatatac attttcaggg ctcaagaagc ccatttntca    120
tggagatcct aaatgaaatg ccaagactga aagacccatt ttcagtgacc tttccaaata    180
ctgnggacca aganacaaaa cttcagcaaa cattcaatca aatntgccct ggggacggga    240
ggggagggag taccacccca cagactccaa gcaacacata aaacgccaca gcaggacatt    300
tgccaaagga gctaccacat ggaggtttgt aggcgtttca aacaagaaag cacttaggtt    360
aanacaccan cnggaaggag ctgggatgca ggccaagttg caatctggaa agggatctga    420
actgtggaca cagttgaaaa cacggncatg ttcacctgct gcggnggaaa cgggtctcct    480
ttgagcctac ctaagagggg cctgggttgt tgangcnggc ctaaaaagtc gtgganggac    540
ccaaagcaaɕ agatgccttg ggggagaata aangcagaaa taagggcgcg agttacttgc    600
caactgcaaa ncctntaggt gggtctgtnc nattgcccag aatttcntac ttttataaga    660
nggnccncaa acccnatggg gagccncctt gnnctaaggc nttcccaccc ttg           713
```

<210> 83
<211> 771
<212> DNA
<213> Homo sapiens

<400> 83
```
actttgagaa ggatgcagac tcatctgagc gtatcattgc tcccatgcgc tggggcttgg     60
tcccttcttg gttcaaagaa agtgatcctt ccaagctgca gttcaatact accaactgtc    120
gtagtgatac cgtaatggag aaacggtcat ttaaggtgcc tctgggaaag ggaagacgct    180
gtgtcgtttt agcagatgga ttctatgagt ggcagcgatg tcaggaaca aaccagaggc     240
agccatactt catctatttt cctcaaatca agacagagaa gtcaggtagc attggtgctg    300
cagatagtcc tgagaactgg gagaaagtct gggacaactg gaggctgctg acaatggccg    360
ggatctttga ctgctgggag cccccagagg gaggagatgt cctgtattcc tataccatca    420
tcacagtgga ttcctgcaaa ggcttgagtg acatccacca caggatgcct gccatattag    480
atggagagga ggcagtttct aaatggcttg actttggtga agtctcaact cangaagctc    540
tgaaattaat ccacccaaca gagaacatca ccttccatgc agtctcttct gtggngaaca    600
actcgcgaaa caacacttct gagtgtctgg ctnctgtcga cttggtggtc aaaaangagc    660
tcaaggcaag tggcaatanc ccaaaagatg ttgcaatggg ttggncccaa agtcnccca    720
aaaggaaga ctcaaaaacc cttcaaaagg aaaaagtcag atgttnccca a              771
```

<210> 84
<211> 961
<212> DNA
<213> Homo sapiens

<400> 84
```
ctcaatccaa cagcccagtg cttctgtctc gactgcactt tgagaaggat gcagactcat     60
ctgagcgtat cattgctccc atgcgctggg gcttggtccc ttcttggttc aaagaaagtg    120
atccttccaa gctgcagttc aatactacca actgtcgtag tgataccgta atggagaaac    180
ggtcatttaa ggtgcctctg ggaaagggaa gacgctgtgt cgttttagca gatggattct    240
atgagtggca gcgatgtcag gaacaaaccc agaggcagcc atacttcatc tattttcctc    300
aaatcaagac agagaagtca ggtagcattg gtgctgcaga tagtcctgag aactgggaga    360
agtctgggga caactggagg ctgctgacaa tggccggggat cttttgactgc tgggagcccc    420
cagagggagg agatgtcctg tattcctata ccatcatcac agtgattcc tgcaaaggct    480
tgagtgacat ccaccacagg atgcctgcca tattagatgg agaggaggca gtttctaaa    540
tggcttgact ttggtgaagt ctcaactcag gaagctctga attaatcca cccacagaga    600
acatcacctt ccatgcagtc tcttctgtgg tgaacaactc gcgaaacaac acttcctgag    660
tgtctggctc ctgtcgactt gggnggtcna aaaaagagct tcagggcaag tggcagtaac    720
ccaaaagant tttgccantg ggttgggccc caaagttca ccccaaaaan ggaaganctc    780
aaaaaacacc ctcaaaaagg gaaaanatcc agattgttnc cccagngggt ccnagtcngt    840
```
31

```
tnctggcaan aaanaaatnc cccttccccn cccaanaaaa aggcncctgn caggacttcc    900
ntaaaaccaa tgggcttnaa accgggaaaa aaggaaggag ggaacctttg gggccaancg    960
t                                                                     961
```

<210> 85
<211> 478
<212> DNA
<213> Homo sapiens

<400> 85
```
accaaataca atttattcag gaaaaaaata aattttaaga acttattttt attttatttt     60
agaacttaaa aataaatttt taagaactaa aaaagtgaaa gagcccagtg gctgagcaga    120
aaacagctta ctacaaggag taccagatca gggcagagac ttcccagctg ggtaaggcat    180
gctttgaggg aagactccac cagccctgcc aggaaagggc agcaggcgca gtgcccctat    240
ggggcccaca tggctggtaa cagcagcagg acacctcttc caaagctgtc caccagcccc    300
actaggggct cctactcatg gcaaaaaaga ctacatgagc ccacaactgt caactaacac    360
agtgccacct cctcccaaag caaacacata tacatacaat gttaagaacc tattatcaga    420
acagcagtgc agcagaccct ggccttggtc tctgaaagtc ctgtgtcact ggctgtaa      478
```

<210> 86
<211> 830
<212> DNA
<213> Homo sapiens

<400> 86
```
gcagtttcag tatcctgtat cacgtatttg aggggaatat tcccagaatg cgcttatgga     60
acaagatatc tagatgatct ttgtgtcaaa atactgagag aagataaaaa ttgcccagga    120
tctacacagt tagtgaaatg gatgctagga tgttatgatg ctttacagaa aaaatatcta    180
aggatggttg ttctagctgt atacacaaac ccagaagatc ctcagacaat ttcagaatgt    240
taccaattca aattcaaata caccaataat ggaccactca tggacttcat aagtaaaaac    300
caaagcaacg aatctagcat gttgtctact gacaccaaga aagcaagcat tctcctcatt    360
cgcaagattt atatcctaat gcaaaatctg gggcctttac ctaatgatgt ttgtttgacc    420
atgaaacttt tttactatga tgaagttaca cccccagatt accagcctcc cggttttaag    480
gatggtgatt gtgaaggagt tatatttgaa ggggaaccta tgtatttaaa tgtgggagaa    540
gtctcaacac cttttcacat cttcaaagta aaagtgacca ctgagagaga acgaatggaa    600
aatattgact caactntnct atcaccaaaa caaataaaaa caccatttca aaaaatcctg    660
agggacaaag atgttnaana tgaacaggac ntttatataa gtggatgatt ttggacattg    720
aaaactnaaa tggaagaaca nggaaaaaaa ccctgcntnt tntgacttga aaaaccaagt    780
ttagtttgng gaggaagatg aaattatgag ggctaaagaa agtccanaac                830
```

<210> 87
<211> 747
<212> DNA
<213> Homo sapiens

<400> 87
```
actgaacaat attttattta tgctgcaaaa aatgccatac tttaaaaatc agtctttttg     60
tcctgtaaaa aaaagcatag taaaggtaaa gcaccaattc ttaaattgta cattatatat    120
taaaatgtta atacattatg tcaaaatatt gaagaacatt gttttaataa cagcacaatg    180
acaaaagagc cagttaaatg gtataatttt aacataagta aaaagtgaat ccataccaaa    240
ttttaatacc aaagtaaaca ttactgttta gaaaaatggc attagagggc cttaacagtt    300
agtatatatt taaaggaaat attaagtagg taatgaacaa aatcaatttt gaaattttac    360
ttattaccga atcaattatg acatttgtct tttgctttta ttcaaaagtt ctattggatt    420
tatctcaaga ttaaggacca caatatgaca gtcagccaaa aacttagttt tagtgtacaa    480
actgctttaa actacatata catcttcaga gttagggaaa tataatatag ggccttcagt    540
ttaaatggng agaagaactc tgcagcctgc agaacaaaaa taattttata tatgtncttt    600
gggtcactaa actttctcct ttttggcact gactcttgac tagaaaaatc aaagggatgg    660
nggactattc tnccaaaatc atgttgactt ntcttccgat ttcttttgga agatttactg    720
ggtggattnc atttgncatt tattctg                                       747
```

<210> 88
<211> 1003
<212> DNA

<210> Homo sapiens

<400> 88

```
aaactctnct cgcgcgccng caggtcgaca ctagtggatc caaagcaatg atgctacctg      60
ttctgaccca tcatatccgc taccaccaat gcctaatgca tttggacaag ttgataggat     120
atactttcca agatcgttgt ctgttgcagc tggccatgac tcatccaagt catcatttaa     180
attttggaat gaatcctgat catgccagga attcattatc taactgtgga attcggcagc     240
ccaaatacgg agacagaaaa gttcatcaca tgcacatgcg gaagaaaggg attaacacct     300
tgataaatat catgtcacgc cttggccaag atgacccaac tccctcgagg attaaccaca     360
atgaacggtt ggaattcctg ggtgatgctg ttgttgaatt tctgaccagc gtccattgt     420
actatttgtt tcctagtctg gaagaaggag gattagcaac ctatcggact gccattgttc     480
agaatcagca ccttgccatg ctagcaaaga aacttgaact ggatcgattt atgctgtatg     540
ctcacgggcc tgacctttgt agagaatcgg accttcgaca tgcaatggcc aattgtttg     600
aagcgttaat aggagctgtt tacttggagg gaagcctgga ggaagccaag cagttatttg     660
gacgcttgct ctttaatgat ccggacctgc gcgaagtctg gctcaattat cctcttcacc     720
cactccaact acaagagcca aatactgatc gacaacttat tggaaacttt ttccagttct     780
acaaaaaact tactgagttt gaaagaaacc aattgggagt aaatttttta ctcattggtt     840
ccgactttnt ggcaangggc cnttcacatt tgagaaactg gggggattta acccntntga     900
ccccttaggc cccaatcaga agaaatggga aattnctang gggacttccn taatggcaac     960
ctgggggagnc ccccaganga ccttattcat ttcattttnc cca                     1003
```

<210> 89
<211> 763
<212> DNA
<213> Homo sapiens

<400> 89

```
gcgatttgac tctgtatttt atttcaatga gcacacttcg ttcattgtct gcaggaaaac      60
taggctaggt ctcaatagac aacagtcaca gttactgagc aagtaaatac tccacacttg     120
catgccctcc tttatttctt gatgtcttca gtctcatctg gctctctctc ttgatgctct     180
ctttcccacc tcatttcttt taactcttgt ctgtacttcc gttcgatgaa ccgcttctga     240
tgggccatct ggggaaaatt atatttttca agcgcatcca ttgctgctcc catttccgct     300
tgctgaatac ttggtccttt cccacagcct attctttctc ccttgaaata aacagccaca     360
gtgtaggttc gggcatggga tgggcccact gtctgcagag tcttgtacaa aggaatgtct     420
ggctcttttc cttctgccta agggcaagca acactgctga agctgggatt tggggcattc     480
caatcctgat tcaaaatgaa ctctttaat cgnggaaaga aacagacatt catgaaaagt     540
atgaacatat tncaaatcct tatcaatgna cagcgctgca ataaatgatt ccaaaaggnc     600
cnccanggct tggggcgaaa cccccaaggc cttttggctt ggcgtgggta ttggnggact     660
cctggatgcc caagttcttc cgtaccttgg gcctgggttt tntattcnc aaanagcttc     720
naacaaagtt aagggncctt atgaagactg ggnaaagaaa gaa              -    763
```

<210> 90
<211> 586
<212> DNA
<213> Homo sapiens

<400> 90

```
gncctataat gagtcntant acaangtcga cactagtgga tccaaagctc tgcttagtat      60
atgtttacat gcctaatggt tcattgctag acagactctc ttgcttggat ggtactccac     120
cactttcttg gcacatgaga tgcaagattg ctcagggtgc agctaatggc atcaattttc     180
tacatgaaaa tcatcatatt catagagata ttaaaagtgc aaatatctta ctggatgaag     240
cttttactgc taaaatatct gactttggcc ttgcacgggc ttctgagaag tttgcccaga     300
cagtcatgac tagcagaatt gtgggaacaa cagcttatat ggcaccagaa gctttgcgtg     360
gagaaataac acccaaatct gatatttaca gcttggtgt ggttttacta gaaataataa     420
ctggacttcc agctgtggat gaacaccggg aacctcagtt attgctagat attaaaagaa     480
gaaattgnag atgaagaaaa gacaattgaa gattatattg ataaaaagat gaatgatgct     540
gattccactt cagttgaanc tatgtacctc tgttgntagt caatgt                   586
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<210> 91
<211> 630
<212> DNA
<213> Homo sapiens

33

<400> 91
aatgtgaccc atttatttat ttatttattt atgatggagt ctcactctgt cacccaggct   60
ggagtgcagt ggcacgatct cagctcactg caacctctac ctccctggtt ccagctagtc   120
tcctgcctca gcctcccaag tagctgggac tacaggtgtc caccaccacg ctcgtctaat   180
ttttgtattt ttagtaaaga cggggtttca ccatgttggc caggccggtc ttgaactctt   240
gacctcaggt gatctgcctg cctcggcctc ccaaagtgct gggatttaca ggtatgagcc   300
accacatcca gccaatgtga cccattatct cacagttcta tatattagaa gtccagcaca   360
gaacagatag attctcatac tgaggatcat gcaaagctga aatccaggtg tcagcccagg   420
ctgtggttat catctgaagc ttggagtact cttctaagct gactcanatt tttggcagaa   480
ttcagttcct tgnggttgca actgaaggtc ccaatttttt tttcctgctt gctgacaact   540
ggaaggnagg tctcatctnc taaaggcccc tttanggntt tagccaaatg tgggnccttt   600
tnacatactt ttttnaaggc ttaacaaagg   630

<210> 92
<211> 469
<212> DNA
<213> Homo sapiens

<400> 92
gtgactacag gcngatcgag attactattt gcaaaaatga tgaatgtgtg ctagaagata   60
attctcagcg gaccaaatgg aaagtgatca gccccacagg gaacgaggca ntggtgccgn   120
cagtctgctt cctcatcccc ccacccaata aggatgccat tganatggcc agcagggtcg   180
aacaatctta tcanaaggtt atggcccttt ggcatcagct gcatgttaac accaaaagcc   240
ttatntcttg gaactatctg cgtaaagacc ttgaccttgt acagacctgg aacctagaaa   300
agcttcgatc ctcagcacca ggggagtgcc atcagattat gaanaacctt caggcccact   360
atgaagactt tntgcaggat agtcgagact ctgtgctggt ctcagtggct gatcgcttgc   420
gcttggaaga ggaggnggaa gcttgtaaag cccgcttcca gcacctgat   469

<210> 93
<211> 712
<212> DNA
<213> Homo sapiens

<400> 93
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tcctgtagct cccggagctg ctggtacatc tggggattaa tgaggtttct ggctacgccc   120
tcctccaaag agaggttttc acccgtctca ggggcaatga ggccagacat gataacctga   180
gattccagaa gcactaggcc tgtgtcttgg tcaaggaggc ccttttgcat ggctttgaag   240
atgggaaata tctccactgt gcctaggtca atcaccccag caactgctct gcattccttt   300
tgttctgtct ggtgagccaa ctggctctga agctgctgaa gctgatttgc agaaccatca   360
caaaggtcat ggtaagcctt gtttagggca ttcaattgct cagatatttg tttcttctct   420
ttttctgaga gcttatgacc atgcttggcc aagaagatct gtgatgtttt aatagcttca   480
aaaacttgtt ctttctttgt tgtcagctct tctgacagaa cctgctgttc caaaatagct   540
ttttcaatgt ctgttgattc tttggtctcg gatgaagnag cttttccttg ngtattccct   600
cgctagggta gacaccccan cccaaaaagt tctttaaccc ttctncacat ggtccttggt   660
tncttcctct ttttaacant ttttttcctt cctccttccaa aacgcccgga at   712

<210> 94
<211> 846
<212> DNA
<213> Homo sapiens

<400> 94
gaaagaacaa cgaaaagaaa atgaacctga gcagaaaaa actcatttat ttgcaaaaca   60
ggagaaagcc ttctatccta aatcatttaa aagtaaaaaa caaaagccat ctagggtctt   120
atattcaagt actgaaagtt ctgatgaaga agctcttcag aataaaaaga tttctacttc   180
atgttccgtc atccctgaaa catcaaattc tgatatgcaa accaaaaagg aatatgtagt   240
ttcaggtgaa cacaaacaga aaggcaaagt taaagagaaa ttgaaaaatc agaataaaaa   300
taaagagaac caagagctaa agcaagaaa ggaaggaaaa gaaaatacaa gaataacaaa   360
cttgacagta aatactggac tagattgttc agaaaagacc agagaggagg ggaactttag   420
gaaatctttt agcccaaaag atgatacttc attacatta tttcatattt ccactggtaa   480
atctcccaaa cattcttgtg gattaaagtg aaaaacagtc aacaccacta aaacaagaac   540
atactaaaac atgtttatca ccaggaagtt ctgaaatgtc attacagcct gatcttgttc   600
34

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    ggtatgataa tacagaatct gaattcttgc ccagaaagtt caagtgtaaa atctttgtaa    660
    gccttaaggg aaaaaagcaa acatcagaaa gatttcccct ttagaatttg ggngaaaaat    720
    caaaatgcca aaaattaaag ggatgaagga tcattagtcc cacatttgga aaaattcana    780
    attggcacac ttgaaaaaaa tgggataaag gaanggtaaa acctttaaa aaaacataaa      840
5   tttgga                                                               846

        <210> 95
        <211> 505
        <212> DNA
10      <213> Homo sapiens

        <400> 95
    atgctttct ttttccctct ntttatgctt caatttatgt ttttttaatg ntttaccttn     60
    tttatccatt tttttcagng ggcaatctga attttcaaat gntggactat gatcttcatc    120
15  ctttatttttg gcatttgatt tttcaccaaa ttctaagngg aaatctttct gatgttngct   180
    tttttcctta tgcttacaan attttacnct tgaactttnt ggcaanaatt caaattctgt    240
    nttatcatnc cnaacaanat caggctgtaa tgacatttca aaacttcctg gggataaaca    300
    tgtttttanta tgttcttgnt ttaggggggn tgactgnttt tcacttaatc cncaanaatg   360
20  tttgggganat ttaccngngg aaatatgaaa taaatgtaat gaagtntcat nttttgggct   420
    aaaanatttc ctaaagttcc cctcctctct ggtcttttct gaacaatcta nnccagtatt    480
    tactggcaag gttggnattc ttgga                                          505

        <210> 96
        <211> 1647
25      <212> DNA
        <213> Homo sapiens

        <400> 96
    gtgtgcaata ctttccccgg catttaaagt tagagaattt tccgtcacag atgcagttcc     60
30  ttttccaata tctctgatct ggaaccatga ttcagaagat actgaaggtg ttcatgaagt    120
    ctttagtcga aaccatgctg ctcctttctc caaagttctc accttTctga aagggggcc      180
    ttttgagcta gaagctttct attctgatcc ccaaggagtt ccatatccag aagcaaaaat    240
    aggccgcttt gtagttcaga atgtttctgc acagaaagat ggagaaaaat ctagagtaaa    300
35  agtcaaagtg cgagtcaaca cccatggcat tttcaccatc tctacggcat ctatggtgga    360
    gaaagtccca actgaggaga atgaaatgtc ttctgaagct gacatggagt gtctgaatca    420
    gagaccacca gaaaacccag acactgatgc aaatgaaaaa aaagttgacc agcctccaga    480
    agctaaaaag cccaaaataa aggtggtgaa tgttgagctg cctattgaag ccaacttggt    540
    ctggcagtta ggggaaagac cttcttaaca tgtatattga gacagagggt aagatgataa    600
    tgcaagataa attggaaaaa gaaaggaatg atgctaaaaa tgcagttgag gaatatgtgt    660
40  atgagttcag agacaagctg tgtggaccat atgaaaaatt tatatgtgag caggatcatc    720
    aaaattTttt gagactcctc acagaaactg aagactggct gtatgaagaa ggagaggacc    780
    aagctaaaca agcatatgtt gacaagttgg aagaattaat gaaaattggc actccagtta    840
    aagttcggtt tcaggaagct gaagaacggc caaaaatgtt tgaagaacta ggacagaggc    900
    tgcagcatta tgccaagata gcagctgact tcagaaataa ggatgagaaa tacaaccata    960
45  ttgatgagtc tgaaatgaaa aaagtggaag ctaaacaagc atatgttgac aagttggaag   1020
    aattaatgaa aattggcact ccagttaaag ttcggttca ggaagctgaa gaacggccaa    1080
    aaatgtttga gaactagga cagaggctgc agcattatgc caagatagca gctgacttca    1140
    gaaataagga tgagaaatac aaccatattg atgagtctga atgaaaaaa gtggagaagt    1200
50  ctgttaatga agtgatggaa tggatgaata atgtcatgaa tgctcaggct aaaaagagtc   1260
    ttgatcagga tccagttgta cgtgctcagg aaattaaaac aaaaatcaag gaattgaaca   1320
    acacatgtga acccgttgta acacaaccga aaccaaaaat tgaatcaccc aaactggaaa   1380
    gaactccaaa tggcccaaat attgataaaa aggaagaaga tttagaagac aaaaacaatt   1440
    ttggtgctga acctccacat cagaatggtg aatgttaccc taatgagaaa aattctgtta   1500
    atatggactt ggactagata accttaaatt ggcctattcc ttcaattaat aaaatattt     1560
55  tgccatagta tgtgactcta cataacatac tgaaactatt tatatttct ttttaanga     1620
    tatttagaaa ttttgtgtat tatatgg                                       1647

        <210> 97
        <211> 784
60      <212> DNA
        <213> Homo sapiens

        <400> 97
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gctatggcaa aaatnttta ttaattgaag gaataggcca atttanggtt atctanccca      60
agtccatatt aacanaattt ttctcattag ggtaacattc nccattctga tgnggnggtt     120
cancnccaaa atngnttttg gcttctaaat cttcttcctt ttnatcaata ttngggccat     180
ttggagttct ttccagttng ggngattcaa tttttggttt cggtngggtt acaacgggtt     240
cacatgtgtn gccaattcct tgattttgt tttaatttcc tgagcccgtn caactggatc      300
ctgatcaaaa ctnttttag cctgagcatt catgacatta ttcatccatt ccatcacttc      360
attaacanac ttctccactt ttttcatttc aaactcatca atangggngg atttcncatn     420
cttatttctg aagtcagctg ctatcttggg atantgctgc agccnctgcc nagtctaaaa     480
acattttgg ccgttntaat gttcctnaaa ccnaacttc actggngtgc caantntcct       540
taatcctgcc accnngcaac gaannncnngc acnactcngg cctcctcntc cggagacagc    600
ccnccntaag tnttgtgngg cgtcgtcnna nattttgaag accngctcac atataaattt     660
ttcatatngg ccncccagnt tgnntntgac ncataccaaa ttcccaactg gtttttaaccc    720
nttncnttnt tttccaatta ntttggntat natttaccnc tngccnaatn tttggacccc     780
ttat                                                               784
```

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        <210> 98
        <211> 593
        <212> DNA
        <213> Homo sapiens


        <400> 98
atgnagagtc acatactatg gcaaaaatat tttattaatt gaaggaatag gccaatttaa     60
ggntatntag tccaagtcca tattaacaga attttttctca ttagggtaac attcaccatt    120
ctgatgtgga ggttcancac caaaattgnt tttgncttct aaatcttctt cctttttatc     180
aatatttggg ccatttggag ttctttccag tttggggngat tcaatttttg gtttcggntg    240
tgttacaacg ggttcacatg tgttgttcaa ttccttgatt tttggtttaa tttcctgagc    300
acgtacaact ggatcctgat caagactctt tttagcctga gcattcatga cattattcat    360
ccattccatc acttcattaa cagacttctc cacttttttc atttcanact catcaatatg    420
ggtgnatttc tcatccttat ttctgaagca gctgctatct tggcataatg ctgcancctc    480
tgcctagttc ttcaaacatt tttggccgtt cttcancttn ctgaaaccca actttaactg    540
ggagtgccaa ttttcattaa attctttccc acttggcaac atatgcttgg tta           593
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        <210> 99
        <211> 927
        <212> DNA
        <213> Homo sapiens


        <400> 99
gtgtgcaata ctttccccgg catttaaagt tagagaattt tccgtcacag atgcagttcc     60
ttttccaata tctctgatct ggaaccatga ttcagaagat actgaaggtg ttcatgaagt    120
ctttagtcga aaccatgctg ctcctttctc caaagttctc acctttctga gaaggggggcc   180
ttttgagcta gaagctttct attctgatcc ccaaggagtt ccatatccag aagcaaaaat    240
aggccgcttt gtagttcaga atgtttctgc acagaaagat ggagaaaaat ctagagtaaa    300
agtcaaagtg cgagtcaaca cccatggcat tttcaccatc tctacggcat ctatggtgga    360
gaaagtccca actgaggaga atgaaatgtc ttctgaagct gacatggagt gtctgaatca    420
gagaccacca gaaaacccag acactgatgc aaatgaaaaa aagttgacc agcctccaga     480
agctaaaaag cccaaaataa aggtggtgaa tgttgagctg cctattgaag ccaacttggt    540
ctggcagtta ggggaaagac cttcttaaca tgtatattgn agacaagagg gtaagatgat    600
aatgcaagat aaattggaaa aagaaaggg aatgatgcta aaaatgcant tgaaggaatt    660
ntgtgttttg agttcaagan accaagctgg ggtgggncca tattgaaaaa aattttatnt    720
tgnggagcca ggantcnttc aaaatttttt ttggagactt cctcancana aacntgaana    780
ctnggcttgn tttgaaanaa agggagaggg accnagcctt aaccaagcnt ttgttggcca   840
agttnggaan aattaatnga aaattggccc ccccgttnaa agttcggggt ttanggaagn    900
tttaaaaacg gcccaaaatt ttttgaa                                       927
```

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        <210> 100
        <211> 838
        <212> DNA
        <213> Homo sapiens


        <400> 100
atggcaaaaa tatttttatta attgaaggaa taggccaatt taaggntatc tagtccaagt    60
ccatattaac agaattttttc tcattagggt aacattcacc attctgatgt ggaggntcag   120
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      caccaaaatt gttttttgtct tctaaatctt cttccttttt atcaatatttt gggccatttg      180
      gagttctttc cagtttgggt gattcaattt ttggtttcgg ntgtgttaca acgggttcac.     240
      atgtgttggt caattccttg attttttgttt taatttcctg agcacgtaca actggatcct      300
      gatcaagact ctttttagcc tgagcattca tgacattatt catccattcc atcacttcat      360
  5   taacagactt ctccactttt ttcatttcag actcatcaat atgggtgnat ttctcatcct      420
      tatttctgaa gcagctgcta tcttggcata atgctgcagc ctctgcctag ttcttcaaac      480
      atttttggcc ggtcttnanc ttcctgaaac cgaactttac tggagngnca attttcatta      540
      attcttccac ttgncaacat atgcttnntt agcttgggcc tctccttttt atacaagcca      600
      gtcttcagtt tctggganga ggctcaaaaa atttggatga accngctcac atattaaaat      660
 10   tttcatattg ggccacacag nttggcttnt gaacccaata cncatattcc ncaccngctt      720
      tttaacnaca ttncttтntt ttttccaatt ancttggaat tatnatntta cccctnggtn      780
      aaanaacaag gtaaaaaaag gngtttccct nccggccaac caantngggt ttaaatgg       838


          <210> 101
 15       <211> 723
          <212> DNA
          <213> Homo sapiens


          <400> 101
 20   ctanggcaaa aatatttttat taattgaagg aataggccaa tttaaggnta tctagtccaa       60
      gtccatatta acanaatttt tctcattagg gtancatncn ccnttctgat gnggaggttc      120
      agcnccaaaa tngtttttngn cttctaaatc ttcttccttt ttatcaatat ttgggccatt      180
      tggagttctt tccnnntttgg gngattcaat tttnggnttc ggttgggttn cancnggnnc      240
      acatgtgttg nncaattcct tgattttngg ttaatttcct gagcacgtac aactggatcc      300
 25   tgatcaaanac tntttttanc ctgagcattc atgacattat tcatccattc catcacttca      360
      ttaacanact tctccacttt tttcatttca aactcatcaa tanggggggga tttctcatcc      420
      ttatttctga agncagctgc tatcttggca taatgctgca acctctgcct anttcttcaa      480
      acatttttgg ccgtncttca ncttcctgaa accnaacttt aactggaggc caatttttcat      540
      taaattttttc ccncttgcaa catatgccng gntaacctgg gcctctcctt nttnatacaa      600
 30   ccaggctttta antttttgng gngagtctca aaaaaaattt gangancecng ctcncanata      660
      aaattttcat atggccnnac agcttgggtt ntgaacncta cccatattcc caaacngctt      720
      ttt                                                                   723


          <210> 102
 35       <211> 724
          <212> DNA
          <213> Homo sapiens


          <400> 102
 40   cctagggcaa aaatnttttta ttaattgaag gaataggcca atttaaggnt atctagtcca       60
      agtccatatt aacanaattt ttctcattag ggtaacattc nccattctga tgnggnggtt      120
      cancnccaaa atngntttng ncttctaaat cttcttcctt tttatcaata ttggggccat      180
      tnggagttct ttccagttng gggngattcaa ttttnggttt cggnngggtt acaacgggtt      240
      cacatgngtn gntcaattcc ttgatttttng ntttaatttc ctgagcncgt acaactggat      300
 45   cctgatcaaa actntttтta gcctgagcat tcatgacatt attcatccat tccatcactt      360
      cattaacana cttntccact tttttcattt caaactcatc aatatgggggg gatttctcat      420
      ccttatttct gaagcagctg ctatcttggc ataatgctgc agcctctgcc tagttcttca      480
      aacatttttg gccgttcttc agcttcctga aacccgaact ttaactggag gccaattttc      540
      attaattctt ccaacttgca acatatgctt gnttaacttg gcctctcctt nttcatacag      600
 50   ccagtctttta gtttctgnga gggagtctca aaaaatttttg gaagaaccnn ncccataaaa      660
      attttcanat gggcccccca gcttggctnt gaactcatac acatttcccc aacnggcatt      720
      ttaa                                                                  724


          <210> 103
 55       <211> 401
          <212> DNA
          <213> Homo sapiens


          <400> 103
 60   ggtaagatga taatgcaaga taaattggaa aaagaaagga atgatgctaa aaatgcagtt       60
      gaggaatatg tgtatgagtt cagagacaag ctgtgtggac catatgaaaa atttatatgt      120
      gagcaggatc atcaaaattt tttgagactc ctcacagaaa ctgaagactg gctgtatgaa      180
      gaaggagagg accaagctaa acaagcatat gttgacaagt tggaagaatt aatgaaaatt      240
```

```
ggcactccag ttaaagttcg gtttcaggaa gctgaagaac ggccaaaaat gtttgaagaa    300
ctaggacaga ggctgcagca ttatgccaag atagcagctg acttcagaaa taaggatgag    360
aaatacaacc atattgatga gtctgaaatg aaaaaagtgg a                        401
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<210> 104
<211> 677
<212> DNA
<213> Homo sapiens

<400> 104
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atggcaaaaa tattttatta attgaaggaa taggccaatt taaggttatc tagtccaagt     60
ccatattaac agaatttttc tcattagggt aacattcacc attctgatgt ggaggttcac    120
cnccaaaatt gnttttgnct tctaaatctt cttccttttt atcaatattn gggccatttg    180
gagttctttc cagttngggn gattcaattt ttggtttcgg ttgggttaca acgggtncac    240
atgtgtnggt caattccttg atttttgntt taatttcctg agcncgtaca actggatcct    300
gatcaagact ntttttagcc tgagcattca tgacattatt catccattcc atcacttcat    360
taacagactt ntccantttt ttcatttcan actcatcaat atggngggat ttctcatcct    420
tattnctgaa gtcagctgct ntcttggcat aatgctgcan cctntgccta gttnttcaaa    480
cattttgggc cgttcttcag cttcctgaac cgaactttaa ctggnggcca atttcattaa    540
attttccact tggnacaaat gcttgntaan ctngggcctc tccttttcaa acaaccggct    600
ttantttttg nggggangtt cnaaaaattt gaagancccg cncncattaa aattttnata    660
tggcccnaca gcttggg                                                    677
```

<210> 105
<211> 659
<212> DNA
<213> Homo sapiens

<400> 105
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agctaaacaa gcatatgttg acaagttgga agaattaatg aaaattggca ctccagttaa     60
agttcggttt caggaagctg aagaacggcc aaaaatgttt gaagaactag gacagaggct    120
gcagcattat gccaagatag cagctgactt cagaaataag gatgagaaat acaaccatat    180
tgatgagtct gaaatgaaaa aagtggagaa gtctgttaat gaagtgatgg aatggatgaa    240
taatgtcatg aatgctcagg ctaaaaagag tcttgatcag gatccagttg tacgtgctca    300
ggaaattaaa acaaaaatca aggaattgaa caacacatgt gaacccgttg taacacaacc    360
gaaaccaaaa attgaatcac ccaaactgga aagaactcca aatggcccaa atattgataa    420
aaaggaagaa gatttagaag acaaaaacaa ttttggtgct gaacctccac atcagaatgg    480
tgaatgttac cctaatgaga aaaattctgt taatatggac ttggactaga taaccttaaa    540
ttggcctatt ccttcaatta ataaaatatt tttgccatag tatgtgactc tacataacat    600
actgaaacta tttatatttt cttttttaan gatatttaga aattttgtgt attatatgg     659
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<210> 106
<211> 516
<212> DNA
<213> Homo sapiens

<400> 106
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gagacagagg gtaagatgat aatgcaagat aaattggaaa aagaaaggaa tgatgctaaa     60
aatgcagttg aggaatatgt gtatgagttc agagacaagc tgtgtggacc atatgaaaaa    120
tttatatgtg agcaggatca tcaaaatttt ttgagactcc tcacagaaac tgaagactgg    180
ctgtatgaag aangagagga ccaagctaaa caancatntg tcgacangtt ggaanaatta    240
atgaaanntg gnactccagt taaagttcgg tttcaggaag ctgaagaacg ccaaaaatg    300
tttgaagaac taggacagag gctgcancat tatgccaaga tagcagctga cttcaagaaa    360
taaggatgag aaatncaacc atattgatga gtctgaaatg aaaaaagtgg agaagtctgt    420
taatgaagtg atggaatgga tgaataatgt catgaatgct catgctaaaa agagtcttga    480
tcaggatcca gttgtacgtg ctcnggaaat taaaac                              516
```

<210> 107
<211> 347
<212> DNA
<213> Homo sapiens

<400> 107

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ggatgaataa tgtcatgaat gctcaggcta aaaagagtct tgatcaggat ccagttgtac    60
gtgctcagga aattaaaaca aaaatcaagg aattgaacaa cacatgtgaa cccgttgtaa   120
cacaaccgaa accaaaaatt gaatcaccca aactggaaag aactccaaat ggcccaaata   180
ttgataaaaa ggaagaagat ttagaagaca aaaacaattt tggtgctgaa cctccacatc   240
agaatggtga atgttaccct aatgagaaaa attctgttaa tatggacttg gactagataa   300
ccttaaattg gcctattcct tcaattaata aaatattttt gccatag                 347


        <210> 108
        <211> 795
        <212> DNA
        <213> Homo sapiens


        <400> 108
ctgaggaagt gggacctccc cttttgggtc ggtagttcag cgccggcgcc ggtgtgcgag    60
ccgcggcaga gtgaggcagg caacccgagg tgcggagcga cctgcggagg ctgagccccg   120
ctttctccca gggtttctta tcagccagcc gccgctgtcc ccggggggagt aggaggctcc   180
tgacaggccg cggctgtctg tgtgtccttc tgagtgtcag aggaacggcc agaccccgcg   240
ggccggagca gaacgcggcc agggcagaaa gcggcggcag gagaagcagg cagggggccg   300
gaggacgcag accgagaccc gaggcggagg cggaccgcga gccggccatg tcggtggtgg   360
ggttggacgt gggctcgcag agctgctaca tcgcggtagc ccgggccggg ggcatcgaga   420
ccatcgccaa tgagttcagc gaccggtgca ccccgtcagt catatcattt ggatcaaaaa   480
atagaacaat cggagttgca gccaaaaatc agcaaatcac tcatgcaaac aatacggtgt   540
ctaacttcaa aagatttcat ggccgagcat tcaatgaccc cttcattcaa aaggaaaaag   600
gaaaacttga gttacgattt ggttccattg aaaaatggng gagttggaat aaangtaatg   660
tacatgggtg aaagaacatc tatttagtgt ggaggcagat aacaagccat gttgttgaac   720
ttaacttgaa aggaaactgg ntgaaaacag ncttcaaaaa accaataaca aaatggngtt   780
atttcaatcc ccttc                                                    795


        <210> 109
        <211> 580
        <212> DNA
        <213> Homo sapiens


        <400> 109
agaaatgacn ccataagatg aactttattt taaagctcat aaaagtgttc acaatcagtt    60
acaacaggat cgacatttct tccattccac actttcacat gacaatatac tgtatagtga   120
gagagaaagt ttaaagtttt tgttctgcat gctgctaaca catttgacta gcttttgttt   180
tactcattga attttttaata tcaaagcaaa aagtcatttt ctcttggaca gaaatggttt   240
tagaaagccc ttatgaagtc agacttagtc ttgttttataa acatccacac ccacacacat   300
gctgaatgga gagcaaaatg caagaaaact accttggcag gaacaaatgc ttaaagattt   360
taatcacagc cctcttgaac aagcngtaca gttttttttc tccaaaagac aaaagtcagt   420
ttcatcctca gngatgcaaa tggngagact gcacagaaag cttagtatga attcacaatt   480
ccacaggaat ntgaaagtta ccaaggcaat tttcccttt aggatnataa agactacaga   540
cttaagcttt tttcttttc catataatac ncaaaaattt                          580


        <210> 110
        <211> 781
        <212> DNA
        <213> Homo sapiens


        <400> 110
anaaatgaca ccataagatg aactttattt taaagctcat aaaagtgntc acaatcagtt    60
acaacaggat cgacatttnt tccattccac actttcacat gacaatatac tgtatagcga   120
gagagaaagt ttaaagtttt tgttctgcat gctgctaaca catttgacta gcttttggtt   180
nactcattga attttttaata tcaaagcaaa aagtcatttt ctnttggaca gaaatggttt   240
tanaaagccc ttatgaagtc agacttagtc ttgngttata aacatccaca cccacacaca   300
tgctgaatgg agagcaaaat gcaagaaaac taccttggca ggaacaaatg cttnaagatt   360
ttaatcacag ccctcttgaa cnagcagtca cgttttttt ctccaaaaga caaaagtcag   420
tttcatcctc agtgatgcna atggngagac tgnacanaaa gcttagtatg aattcacaat   480
tcacaggaat ctgaaagttc cnaggcaatt ttccttttag gngtcattaa gactccngac   540
ttaagctttt tttcttttc catataaaca ccanaatttc taaatattct taaaaaagaa   600
aatataaata gtttcaatnt gttatgtana gtacatactn tggngaaaat ttttttttaa   660
ttgaaggaat aggcccattt nagggtnttt aatccaagtn cctnttnaca aaattttttnt   720
```

```
attaggggaa catccccntt ttgangnggn gggtcnaccc caaaatggnt ttggcnttaa      780
a                                                                      781
```

```
        <210> 111
        <211> 462
        <212> DNA
        <213> Homo sapiens


        <400> 111
cagcgccggc gccggtgtgc gagccgcggc agagtgaggc aggcaacccg aggtgcggag       60
cgacctgcgg aggctgagcc ccgctttctc ccagggtttc ttatcagcca gccgccgctg      120
tccccggggg agtaggaggc tcctgacagg ccgcggctgt ctgtgtgtcc ttctgagtgt      180
cagaggaacg gccagacccc gcgggccgga gcanaacgcg gccagggcag aaagcggcgg      240
caggagaagc angcaggggg ccggaggacg cagaccgaga cccgaggcgg angcggaccg      300
cgagccggcc atgtcggtgg tggggttgga cgtgggctcn cagagctgct acatcgcggt      360
agcccgggcc ggggggcatcg agaccatcgc cnatgagttc ngcgaccggn gcaccccgtn      420
agtcatatca tttggntcaa aaaatataaa caaatcggag tt                        462
```

```
        <210> 112
        <211> 688
        <212> DNA
        <213> Homo sapiens


        <400> 112
gggaatgtgt gcaagtgggg gcctgtgcat gtgagtgtgt ggtgtgcatg tgggaatgtg       60
tgcaagtggg cgcctgtgcg agtgtgtggt gtgtgtgtgg aatgtgtgc aagtgggcgc      120
ctgtgcgagt gtgtggtgcg tgtgtgggaa tgtgtgcaag tgggcgcctg cccatgtgag      180
tgtgtggtgc gtgtgttgga atgtgtgcaa gtggacgcct gcgcatgtga gtgtgtggtg      240
cgtgtgggaa tgtgtgcaag tgggcacctg tgcgagtgtg tggtgcgcgt gtgggaatgt      300
gtgcaagtgg gcacctgccc atgggagtgt gtggtgcgcg tgtgggaatg tgtgcaagtg      360
ggagcctgcg catgtgagtg tgaggacacc tcgtgctcag gtgtcaccaa ccccatttaa      420
aaaggaaata actatgatga caaccagtct ctagtgtacg atctgatcga gataccactt      480
cctcatctag caagtgagct tggctcaggt cttttaaagc acangtaggc cctgaagaaa      540
ttcagcttca gtccgaacct ctgtgcctgc aggtgatgaa nacttggggc tcattccaat      600
gccaagagcc catganactc ctcctgccag atacctgagt caaaanctta aaagagcggg      660
gcaaganaac cagaaaaaat tagggggaa                                       688
```

```
        <210> 113
        <211> 755
        <212> DNA
        <213> Homo sapiens


        <400> 113
agaaatgaca ccataagatg aactttattt taaagctcat aaaagtgttc acaatcagtt       60
acaacaggat cgacatttct tccattccac actttcacat gacaatatac tgtatagnga      120
gagagaaagt ttaaagtttt tgttctgcat gctgctaaca catttgacta gcttttgttt      180
tactcattga atttttaata tcaaagcaaa aagtcatttt ctcttggaca gaaatggttt      240
tagaaagccc ttatgaagtc agacttagtc ttgttataa acatccacac ccacacacat      300
gctgaatgga gagcaaaatg caagaaaact accttggcag gaacaaatgc ttaaagattt      360
taatcacagc cctcttgaac aagcagtaca agtttttttt ctccaaaaga caaaagtcag      420
tttcatcctc agtgatgcaa atggngagac tgcacagaaa gcttagtatg aattcacaat      480
tccacaggaa tctgaaagtt accaaggcaa ttttccctttt aggatcata aagactacan      540
acttaaagct ttttttcttt ttccatataa tacacaaaat ttctaaatat ccttaaaaaa      600
gaaaatataa atagtttcag gtatgttatg tanagtcaca tactatggca aaaattttta      660
ttaattggaa ggaataggcc catttaaggg tatctagtcc angtccttat taacaagaat      720
tttttnattt ggggnaacat tcaccattct tgatg                                755
```

```
        <210> 114
        <211> 726
        <212> DNA
        <213> Homo sapiens


        <400> 114
```

```
gagaggacca agctaaacaa gcatatgttg acaagttgga agaattaatg aaaattggca        60
ctccagttaa agttcggttt caggaagctg aagaacggcc aaaaatgttt gaagaactag        120
gacagaggct gcagcattat gccaagatag cagctgactt cagaaataag gatgagaaat       180
acaaccatat tgatgagtct gaaatgaaaa aagtggagaa gtctgttaat gaagtgatgg       240
aatggatgaa taatgtcatg aatgctcagg ctaaaaagag tcttgatcag gatccagttg       300
tacgtgctca ggaaattaaa acaaaaatca aggaattgaa caacacatgt gaacccgttg       360
taacacaacc gaaaccaaaa attgaatcac ccaaactgga aagaactcca aatggcccaa       420
atattgataa aaaggaagaa gatttagaag acaaaaacaa ttttggtgct gaacctccac       480
atcagaatgg tgaatgttac cctaatgaga aaaattctgt taatatggac ttggactaga       540
taaccttaaa ttggcctatt ccttcaatta ataaaatatt tttgccatag tatgtgactc       600
tacataacat actgaaacta tttatatttt cttttttaa ngatatttag aaattttggg       660
tattatatgg aaaaagaaaa aaagcttaag tctgtagtct ttttgatcct aaaangggaa       720
aattgg                                                                 726
```

        <210> 115
        <211> 1889
        <212> DNA
        <213> Homo sapiens

        <400> 115
```
ccctggacat ggctccagag atcaacttgc cgggcccaat gagcctcatt gataacacta        60
aagggcagct ggtggtgaat ccagaagctc tgaagatcct atctgcaatt acgcagcctg       120
tggtggtggt ggcgattgtg ggcctctatc gcacaggcaa atcctacctg atgaacaagc       180
tggctgggaa gaaaaacggc ttctctctag gctccacagt gaagtctcac accaagggaa       240
tctggatgtg gngtgtgcct catcccaaga agccagaaca caccctagtt ctgctcgaca       300
ctgagggcct gggagatata gagaagggtg acaatgagaa tgactcctgg atctttgcct       360
tggccatcct cctgagcagc accttcgtgt acaatagcat gggaaccatc aaccagcagg       420
ccatggacca acttcactat gtgacagagc tgacagatcg aatcaaggca aactcctcac       480
ctggtaacaa ttctgtagac gactcagctg actttgtgag cttttttcca gcatttgtgt       540
ggactctcag agatttcacc ctggaactgg aagtagatgg agaacccatc actgctgatg       600
actacttgga gctttcgcta aagctaagaa aaggtactga taagaaaagt aaaagcttta       660
atgatcctcg gttgtgcatc cgaaagttct tccccaagag gaagtgcttc gtcttcgatt       720
ggcccgctcc taagaagtac cttgctcacc tagagcagct aaaggaggaa gagctgaacc       780
ctgatttcat agaacaagtt gcagaatttt gttcctacat cctcagccat tccaatgtca       840
agactctttc aggtggcatt gcagtcaatg ggcctcgtct agagagcctg gtgctgacct       900
acgtcaatgc catcagcagt ggggatctac cctgcatgga gaacgcagtc ctggccttgg       960
cccagataga gaactcagcc gcagtggaaa aggctattgc ccactatgaa cagcagatgg      1020
gccagaaggt gcagctgccc acggaaaccc tccaggagct gctggacctg cacagggaca      1080
gtgagagaga ggccattgaa gtcttcatga agaactcttt caaggatgtg gaccaaatgt      1140
tccagaggaa attaggggcc cagttggaag caaggcgaga tgactttgt aagcagaatt      1200
ccaaagcatc atcagattgt tgcatggctt tacttcagga tatatttggc cctttagaag      1260
aagatgtcaa gcagggaaca ttttctaaac caggaggtta ccgtctcttt actcaaaagc      1320
tgcaggagct gaagaataag tctaccaggg ccaaggaagg ggatacaggc caaagaggtg      1380
ctgaaaaaat atttggagtc caaggaggat gtggctgatg cacttctaca gacttgatca      1440
gtcactctca gaaaaggaaa aagcgattga agtggaacgt ataaaggctg aatctgcaga      1500
agctgcaaag aaaatgttgg aggaaataca aagaagaat gaggagatga tggncagaaa      1560
gagaagagtt atcaggaaca tgtgaancaa ttgactgaga agatggagag ggacagggcc      1620
cagttaatgg cagagcaaga gaagaccctc gctcttaaac ttcaggaaca ggaacgcctt      1680
ctcaaggagg gattcgagaa tgagagcaag agacttcaaa aagacatatg ggatatccag      1740
atgagaagca aatcattgga gccaatatgt aacatactct aaaagtccaa ggagcaaaat      1800
ttgcctgtcc agctccctct ccccaagaaa caacatgaat gagcaacttc agagtgtcaa      1860
acaactgcca ttaaacttaa ctcaaaatc                                       1889
```

        <210> 116
        <211> 791
        <212> DNA
        <213> Homo sapiens

        <400> 116
```
ccctggacat ggctccagag atcaacttgc cgggcccaat gagcctcatt gataacacta        60
aagggcagct ggtggtgaat ccagaagctc tgaagatcct atctgcaatt acgcagcctg       120
tggtggtggt ggcgattgtg ggcctctatc gcacaggcaa atcctacctg atgaacaagc       180
tggctgggaa gaaaaacggc ttctctctag gctccacagt gaagtctcac accaagggaa       240
```

```
      tctggatgtg gngtgtgcct catcccaaga agccagaaca caccctagtt ctgctcgaca      300
      ctgagggcct gggagatata gagaagggtg acaatgagaa tgactcctgg atctttgcct      360
      tggccatcct cctgagcagc accttcgtgt acaatagcat gggaaccatc aaccagcagg      420
      ccatggacca acttcactat gtgacagagc tgacagatcg aatcaaggca aactnctcac      480
5     ctggtaacaa ttctgtagac gactcanctg actttgtgag ctttttttcca gcatttgtgt      540
      ggactcttaa anatttcacc ctggaactgg gaagtagatg gagaacccat cactgctgat      600
      gactactttg gagcttttcn ctaaaagcta anaaaaagnn ctgnataaaa aaaaagtnaa      660
      agcttttatg aatccttngg tggngcatcc gaaaagtttc ttccccaana aggaagtggc      720
      ttcgnctttc aattggggcc cgctcctaaa aaagacccct ncttcncttg aagccanctt      780
10    aaanggagga a                                                           791
```

```
           <210> 117
           <211> 551
           <212> DNA
15         <213> Homo sapiens


           <400> 117
      gattttgagt taagtttaat ggcagttgtt tgacactctg aagttgctca ttcatgttgt       60
      ttcttgggga gagggagctg gacaggcaaa ttttgctcct tggacttttta gagtatgtta      120
20    catattggct ccaatgattt gcttctcatc tggatatccc atatgtcttt ttgaagtctc      180
      ttgctctcat tctcgaatcc ctccttgaga aggcgttcct gttcctgaag tttaagagcg      240
      agggtcttct cttgctctgc cattaactgg gccctgtccc tctccatctt ctcagtcaat      300
      tgtttcacat gttcctgata actcttctct ttctgttcca tcatctcctc attcttcttt      360
      ngtatttcct ccaacatttt ctttgcagct tctgcagatt cagcctttat acgttccact      420
25    tcaatcgctt tttcctttttc tgagagtgac tgatcagtct gtagaagtgc atcagccaca      480
      tcctncttgg actccaaata ttttttcanc acctctttgg ccttgtatcc ccttcctttg      540
      gcacctgggg a                                                           551
```

```
           <210> 118
30         <211> 824
           <212> DNA
           <213> Homo sapiens


           <400> 118
35    ccatcctcct gagcagcacc ttcgtgtaca atagcatggg aaccatcaac cagcaggcca       60
      tggaccaact tcactatgtg acagagctga cagatcgaat caaggcaaac tcctcacctg      120
      gtaacaattc tgtagacgac tcagctgact ttgtgagctt ttttccagca tttgtgtgga      180
      ctctcagaga tttcaccctg gaactggaag tagatggaga acccatcact gctgatgact      240
      acttggagct ttcgctaaag ctaagaaaag gtactgataa gaaaagtaaa agctttaatg      300
40    atcctcggtt gtgcatccga aagttcttcc caagaggaa gtgcttcgtc ttcgattggc      360
      ccgctcctaa gaagtacctt gctcacctag agcagctaaa ggaggagag ctgaaccctg      420
      atttcataga acaagttgca gaattttgtt cctacatcct cagccattcc aatgtcaaga      480
      ctctttcagg tggcattgca gtcaatgggc ctcgtctaga gagcctggtg ctgacctacg      540
      tcaatgccat cggcagtggg gatctaccct gcatggagaa cgcagtcctg gccttggccc      600
45    agatagaaga actcagcccg cagnggaaaa ggctattgnc cacttatgaa cagcaagatg      660
      gggccagaag gggcagctgc ccaccggaaa cccttccagg agctgntggg acctgcncan      720
      ggacagtgag aaaanaggcc attgaagtct ttattgaaan aactttttc aaggatgtgg      780
      gaccaaatgg ttccaaaggn aaattagggg gcccaatttg ggaa                      824
```

```
50         <210> 119
           <211> 756
           <212> DNA
           <213> Homo sapiens


55         <400> 119
      gggngatttt gagttaagtt taatggcagn ngnttgacnc tctgaagttg ctcattcatg       60
      ttgtttcttg gggagaggga gctggacagg caaatttttgc tccttggact tttaaagtat      120
      gttacatatt ggctccaatg atttgcttct catctggata tcccatatgt cttttttgaan      180
      tctcttgctc tcattctcna atccctcctt ganaaggngt tcctgttcct gaagtttaan      240
60    ancgaggggc ttntnttgct ctgccattaa ctgggccctg ncctntcca tnttntcant      300
      caattgnttc acatgttcct gataacnctt ctctttctgg tccatcatct cctcattctt      360
      cttttggatt tcctccaaca tttctttgc agcttctgca gantcaacct ttatacgttc      420
      cacttcaatc gctttttcct tttctgagag ngactgatca gctgtanaag tgcatcaacc      480
```

```
acatccttct tggactccaa atattttttc nccctctttg gcctgtatcc ccttncttgg     540
cccngggaga cttattcttt aactnctgca gcttttgagg aaaaanacgg gacctcctgg     600
nttaaaaaaa gtccctgntt gacatcttnt tntaaggggc caatatntcc tgaagaaaan    660
cntgccacca atctgatgat gcttggaaat tgnttacaaa anaatttgcc tggttcancn     720
gggccctaat tccctggaac attgggccca accttg                              756
```

```
            <210> 120
            <211> 916
            <212> DNA
            <213> Homo sapiens


            <400> 120
gcccaatgag cctcattgat aacactaaag ggcagctggt ggtgaatcca gaagctctga      60
agatcctatc tgcaattacg cagcctgtgg tggtggtggc gattgtgggc ctctatcgca     120
caggcaaatc ctacctgatg aacaagctgg ctgggaagaa aaacggcttc tctctaggct     180
ccacagtgaa gtctcacacc aagggaatct ggatgtggtg tgtgcctcat cccaagaagc     240
cagaacacac cctagttctg ctcgacactg agggcctggg agatatagag aagggtgaca     300
atgagaatga ctcctggatc tttgccttgg ccatcctcct gagcagcacc ttcgtgtaca     360
atagcatggg aaccatcaac cagcaggcca tggaccaact tcactatgtg acagagctga     420
cagatcgaat caaggcaaac tcctcacctg gtaacaattc tgtagacgac tcagctgact     480
ttgtgagctt ttttccagca tttgtgtgga ctctcagaga tttcaccctg gaactggaag     540
tagatggaga acccatcact gctgatgact acttggagct ttcgctaaag ctaagaaaag     600
gtactgataa agaaaagtaa aagctttaat gatcctcggg tggcattccg aaaagttctt     660
ncccaagang aagngcttcg tcttcgattg gnccgcttcc ttaaaaanta ccttggctca     720
cccttanagc agcttaangg aggaagaagc ttgaacccct tgattttatta aaacaaaggt     780
ggcagaaatt ttggttcctt cattncctca agcccttttnc aatgntcaaa anctnttttc     840
aaggggggat ttgcaagncc aatngggggcc tcgtnttaaa aaaaacctgg gggcttganc     900
ttaccgtcaa tggccc                                                     916
```

```
            <210> 121
            <211> 787
            <212> DNA
            <213> Homo sapiens


            <400> 121
gattttgagt taagtttaat ggcagttgtt tgacactctg aagttgctca ttcatgttgt      60
ttcttgggga gagggagctg gacaggcaaa ttttgctcct tggacttttta gagtatgtta     120
catattggct ccaatgattt gcttctcatc tggatatccc atatgtcttt ttgaagtctc     180
ttgctctcat tctcgaatcc ctccttgaga aggcgttcct gttcctgaag tttaagagcg     240
agggtcttct cttgctctgc cattaactgg gccctgtccc tctccatctt ctcagtcaat     300
tgnttcacat gttcctgata actcttctct ttctggccat catctcctca ttcttctttt     360
gnatttcctc caacattttc tttgcagctt ctgcaaattc agcctttata ccgtccactt     420
caatcgcttt ttcctttttg aaaagtgact gacagtctgt anaagtgcat anccccatnc     480
tccttggact ccaaatattt tttcncacct ctttggccgg gaggttacct gtatcccctt     540
ccttgggcac cctgggganga cttattcttn agctcctgca ctttgagnaa anaaccggaa     600
cctcctgggt taaaaaaatg gtccctgttg acaatctttt ttaaaagggc ccaaantntt     660
cttgaagtaa agccntgcca caaatctgat gatgcctttg gaattctgct tacaaaaatn     720
atcttnccct tggttncaac tggggcccta aattccttng gacaattngg cccccatcct     780
tggaaaa                                                               787
```

```
            <210> 122
            <211> 942
            <212> DNA
            <213> Homo sapiens


            <400> 122
gattttgagt taagtttaat ggcagttgtt tgacactctg aagttgctca ttcatgttgt      60
ttcttgggggg gagggagctg gacaggcaaa ttttgctcct tggacttttta gagtatgtta     120
catattggct ccaatgattt gcttctcatc tggatatccc atatgtcttt ttgaagtctc     180
ttgctctcat tctcgaatcc ctccttgaga aggcgttcct gttcctgaag tttaagagcg     240
agggtcttct cttgctctgc cattaactgg gccctgtccc tctccatctt ctcagtcaat     300
tgtttcacat gttcctgata actcttctct ttctggccat catctcctca ttcttctttt     360
gnatttcctc caacattttc tttgcagctt ctgcagattc agcctttata ccgtccact     420
```

```
tcaatcgctt ttttccttttc tgagagtgac tgatcaagtc tgtagaagtg catcaaccac      480
atcctccttg gactccaaat attttttcag cacctctttg gcctgnatcc ccttncttgg      540
ccctggnagn cttattcttc agctcctgca gcttctgagt aaaaaaaccg naacctnctg      600
ggttaaaaaa aggtncctgc ttgacatctt cttctaaaag ggccaaatat atnctgaagt      660
aaagcctgcc acaatctgat gaagctttgg aattctgtta caaaangcat ntcgncttgc      720
ttccactggg ccctaattnc tttggaacat ttgggcccat ncttgaaaan attttnatga      780
aaacttnaan ggcctttttt actgncctgg gganggccac aactctnggg ggttcccggg      840
canntgccct ttggccattg tngtnaaagg ggnaaaactt tnccgggggt gagttttttt      900
nggccaggcn aactggtttc ctccgggaaa cccctgcca gg                         942
```

<210> 123
<211> 894
<212> DNA
<213> Homo sapiens

<400> 123

```
ctaagaagta ccttgctcac ctagagcagc taaaggagga agagctgaac cctgatttca       60
tagaacaagt tgcagaattt tgttcctaca tcctcagcca ttccaatgtc aagactcttt      120
caggtctaga gagcctggtg ctgacctacg tcaatgccat cagcagtggg gatctaccct      180
gcatggagaa cgcagtcctg gccttggccc agatagagaa ctcagccgca gtggaaaagg      240
ctattgccca ctatgaacag cagatgggcc agaaggtgca gctgcccacg gaaaccctcc      300
aggagctgct ggacctgcac agggacagtg agagagaggc cattgaagtc ttcatgaaga      360
actctttcaa ggatgtggac caaatgttcc agaggaaatt aggggcccag ttggaagcaa      420
ggcgagatga cttttgtaag cagaattcca aagcatcatc agattgttgc atggctttac      480
ttcaggatat atttggccct ttagaagaag atgtcaagca gggaacattt tctaaaccag      540
gaggttaccg tctcttttact cagaagctgc agggagctga agaataaagt actaccaggn      600
gccaaggaag gggatacagg ccaaagaggt gctgaaaaaa tatttgggag tccaagggag      660
gatgttggct tgatgccctt nttacagact ggattcagtt ccnttctcca gaaaanggaa      720
aaagccgatt tggaagntgg gaacggtant aaaaggcttg aaattttnca gaaancctgg      780
caaaanaaaa atgttngggg ggaaaatccc aaaagaaaga attggnggg gatgattgga      840
acccgaaaag gagaaaaagt ttttcaggga aacatgttga aacaatttga cttg          894
```

<210> 124
<211> 845
<212> DNA
<213> Homo sapiens

<400> 124

```
gattttgagt taagtttaat ggcagttgtt tgacactctg aagttgctca ttcatgttgt       60
ttcttgggga gagggagctg gacaggcaaa ttttgctcct tggacttta gagtatgtta      120
catattggct ccaatgattt gcttctcatc tggatatccc atatgtcttt ttgaagtctc      180
ttgctctcat tctcgaatcc ctccttgaga aggcgttcct gttcctgaag tttaagagcg      240
agggtcttct cttgctctgc cattaactgg ccctgtccc tctccatctt ctcagtcaat      300
tgnttcacat gttcctgata actcttctct ttctgnccat catctcctca ttcttctttt      360
gtatttcctc caacattttc tttgcagctt ctgcagattc agcctttata cgttccactt      420
caatcgcttt ttccttttct gagagtgact gatcaagtct gtagaagtgc atcagccaca      480
tcctccttgg actccaaata ttttttcagc acctctttgg cctgtatccc cttcttggcc      540
ctggtagact tattcttcag ctcctgcagc ttctgagtaa aaaaaccgga accctctggg      600
ttaagaaaat gttccctgct tgacatcttc ttntnaangg cccaatatat cctggaagta      660
aagccntgcc acaatctgat gagctttgga atctggctac aaaaagnatt tcgncttgct      720
tccactgggc ccctaatttc tctggaacat ttgggcccat ncttgaaaaa gtctttatta      780
anacttnaan ggcctttttt actggccctg ngcagggcca caacttctgg anggtttccc      840
ggggg                                                                 845
```

<210> 125
<211> 818
<212> DNA
<213> Homo sapiens

<400> 125

```
ctcctaagaa gtaccttgct cacctagagc agctaaagga ggaagagctg aaccctgatt       60
tcatagaaca agttgcagaa ttttgttcct acatcctcag ccattccaat gtcaagactc      120
tttcaggtgg cattccagtc aatgggcctc gtctagagag cctggtgctg acctacgtca      180
```

44

```
atgccatcag cagtgggggat ctaccctgca tggagaacgc agtcctggcc ttggcccaga      240
tagagaactc agccgcagtg gaaaaggcta ttgcccacta tgaacagcag atgggccaga      300
aggtgcagct gcccacggaa accctccagg agctgctgga cctgcacagg gacagtgaga      360
gagaggccat tgaagtcttc atgaagaact ctttcaagga tgtggaccaa atgttccaga      420
ggaaattagg ggcccagttg gaagcaaggc gagatgactt ttgtaagcag aattccaaag      480
catcatcaga ttgttgcatg gctttacttc aggatatatt tggccctta gaagaagatg      540
tcaagcaggg aacattttct aaaccaggag gttaccgtct ctttactcaa aagcttgcag      600
gagctgaaga ataagtacta ccaggtgccc aaggaagggg atacaggcca aagaggtgct      660
gaaaaaatat tttggagtca angaggatgt ggcttgatgc actttctaca gactggatca      720
gtcactntta agaaaaagga aaaaagcgat tggaagtggg aacgtattaa aggctgaatt      780
ttgcagaaac ctggcaaaaa aaatgtttgg ggggaaat                             818
```

        <210> 126
        <211> 617
        <212> DNA
        <213> Homo sapiens

        <400> 126
```
tgggaaccat caaccagcag gccatggacc aacttcacta tgtgacagag ctgacagatc       60
gaatcaaggc aaactcctca cctggtaaca attctgtaga cgactcagct gactttgtga      120
gcttttttcc agcatttgtg tggactctca gagatttcac cctggaactg gaagtagatg      180
gagaacccat cactgctgat gactacttgg agcttcgct aaagctaaga aaaggtactg      240
ataanaaaag taaaagcttt aatgatcctc ggttgtgcat ccgaaagttc ttccccaaga      300
ggaagtgctt cgtcttcgat tggcccgctc ctaagaagta ccttgctcac ctagagcagc      360
taaaggagga agagctgaac cctgatttca tagaacaagn tgcagaattt tgttcctaca      420
tcctcanccn ttccaatgtc aagactcttt caggtggnat tccagcaatg ggcctcgtct      480
aaaagagcct ggtgctgacc tacgtcaatg ccatcagcag tggggatctc cctgcatggg      540
aaaacgcagt cctggccttg gcccacatag aagaactcan cccgcagggg gaaaaggcta      600
tntgnccact atgaaac                                                    617
```

        <210> 127
        <211> 888
        <212> DNA
        <213> Homo sapiens

        <400> 127
```
aatatggcca ggggatcaat ccgattagcc gactggccca gatccagcag gcaaaaaagg       60
agaaggagcc agagtacacg ctcctcacag agcgaggcct cccgcgccgc agggagtttg      120
tgatgcaggt gaaggttgga aaccacactg cagaaggaac gggcaccaac aagaaggtgg      180
ccaagcgcaa tgcagccgag aacatgctgg agatccttgg tttcaaagtc ccgcaggcgc      240
agcccaccaa acccgcactc aagtcagagg agaagacacc cataaagaaa ccaggggatg      300
gaagaaaagt aacctttttt gaacctggct ctggggatga aaatgggact agtaataaag      360
aggatgagtt caggatgcct tatctaagtc atcagcagct gcctgctgga attcttccca      420
tggtgcccga ggtcgcccag gctgtaggag ttagtcaagg acatcacacc aaagatttta      480
ccagggcagc tccgaatcct gccaaggcca cggtaactgc catgatagcc cgagagttgt      540
tgtatgggg cacctcgccc acagccgaga ccattttaaa agaataacat cttnttcagc      600
cacgtacccc atggacctct cacgagaccc tntgagcaac ttggactatc ttttcagagt      660
ccanggattc cangttggaa tacaaaaact tttccccaaa aaccaccaag aacgaatttg      720
tattctttt atcnaattgn ttcttttcaa gccaccttt gatcaaacca ttggtattcn      780
ggccaangga tgtgggagtt ccttgncctt gatatnggct tgggcttgaa cattnttaaa      840
atttcttgtc ttgagtttgg ncccaccaaa gtnccaanaa ttgcccaa                 888
```

        <210> 128
        <211> 751
        <212> DNA
        <213> Homo sapiens

        <400> 128
```
agtattacca tttattgatg acaaacactt aagtttact tacattccat ggggagaaaa       60
attccagcgt aaacaatgaa tggaagcagt acttaactcg cagggctacc aggctttcca      120
tacggaccac acgcagagcc tcagtgcaca cacttctgtg tacagtaaca caacatcaaa      180
agcaacacag ctgtatacag aaacgtaggt cattctttc agccctaatg gagatgtaat      240
taacagtatc gagcactctg gaaaatcact ctgcaggttt atatggacta catggagatc      300
```
                                    45

```
        atatcctgta gtgtagtgaa agctaagtcc tcaagagcca tatgtataga tacacaatgt        360
        tttttaataa tctttaaaac agagatcaaa gttcatttaa gtcctgtttg cattaacaaa        420
        aataaaaatg aaataaaaat ggaaccaaat gatcatctaa agtttaaaat tcctaaattg        480
        tccaatttat acaactgtgg gagacttatt caaggttttt gaaagtccag gactgtttca        540
5       agctgaacca gagggcacac aatttgcatc actggaaact gtcctgggtt agtcaatgaa        600
        ataaaaatgt ctaaccacat tacacatgga tatgatcttt tgtcggttta gatttatttga       660
        taaagtcagt cttcagacaa gttttcccaa actgngctat ttaactaaga nacaattggn        720
        gaaaattctc aaatggaaaa atttttatat a                                        751
```

```
10          <210> 129
            <211> 1885
            <212> DNA
            <213> Homo sapiens
```

```
15          <400> 129
        cacaaatcag atctacctgc attttcagca gaggtcgaag aggaaagtga agctggtaaa         60
        gaaagtgaag aaactgaaac taaacaaact ttgaaagaat ttcgatgtca ggtaagtgac        120
        tgttctcgaa ttttccaagc aattactggc ctaatacaac actacatgaa acttcatgaa        180
        atgactcctg aagaaattga aagtatgact gcttcagtgg atgttgggaa gtttccatgt        240
20      gaccaattag agtgtaaatc ttcatttact acatatttga actatgttgt tcatctagag        300
        gcagaccacg ggattggact aagggcaagt aaaacagaag aagatggtgt atacaaatgt        360
        gattgtgaag ctgtgaccg tatatatgca acccggtcga atctcctccg acacattttt        420
        aataagcata atgacaaaca taaggctcat ttgattcgtc caagaagatt aacaccaggc        480
        caggaaaata tgtcaagcaa ggcaaaccaa gaaaaatcaa agtctaaaca tcgggggacc        540
25      aagcacagca gatgtggaaa ggaaggaata aaaatgccca agaccaaacg aaagaaaaaa        600
        aataatttag aaaacaagaa tgcaaagatt gtgcagattg aagaaaataa gccttattct        660
        ctgaaacgtg ggaagcatgt atattctata aaggctagaa atgatgccct gtctgagtgt        720
        acaagcagat ttgtaaccca gtatccatgt atgataaagg gatgtacttc agttgttaca        780
        agtgaaagca atataattag acattataag tgccataaat tatctaaggc atttacatca        840
30      caacaccgaa atcttcttat tgtattcaaa cggtgttgca actcacaagt aaaggaaacg        900
        tctgagcaag aaggtgctaa gaatgatgtg aaagattctg acacgtgtgt atcagagagc        960
        aatgataatt caagaacaac agctacagtt tcacaaaagg aagttgaaaa aaatgaaaaa       1020
        gatgaaatgg atgaactaac agaattgttt attacaaaat taataaatga agatagcaca       1080
        agtgtagaga cccaagctaa tacttcttca aatgtaagta atgattttca gggaagatac       1140
35      ctctgccagt ccgaaagaca aaaagccagt aatttgaaga gagttaata aaggaaaaa         1200
        atgtctcaca aaataaaaaa aggaaagttg aaaaagctga accagcatca gcagctgagt        1260
        taagtagcgg gcgtaaagaa gaagaaactg ctgttgccat tcaaccattg aggagcatcc        1320
        tgcatctttt gactggagct cttttttaagc caatgggatt tgaagatcat ttctgaagtt       1380
        tcttgaggag tctgcagtga agcagaagaa aaatactgca aagaccatcc gaatactgga        1440
40      aacaaaaaag gatcccattc aaattcaaga aaaaatattg ataagactgc tgtgactagt        1500
        ggaaatcatg tatgtccttg taaagaaagc gaaacgtttg tacagtttgc caatccatca        1560
        cagcttcagt gcagtgataa tgtaaaaatt gttttagaca agaatcttaa agattgcact        1620
        gagcttgtct taaagcaact tcaggaaatg aaacctaccg tcagtctgaa aaaacttgaa        1680
        gtacattcaa atgatccaga tatgtctgtt atgaaagata tcagtatagg taaagccaca        1740
45      ggcagaggtc agtactgata attaatgtag tataaataca tcatttacca ttttatttta        1800
        aataggaagc catcaagcat gctagaattg tgaaactttc attatatttt tttgttgttg        1860
        acatgaatta acctggccaa aaccc                                              1885
```

```
            <210> 130
50          <211> 961
            <212> DNA
            <213> Homo sapiens
```

```
            <400> 130
55      gaaaggaagg aataaaaatg cccaagacca aacgaaagaa aaaaaataat ttagaaaaca         60
        agaatgcaaa gattgtgcag attgaagaaa ataagcctta ttctctgaaa cgtgggaagc        120
        atgtatattc tataaaggct agaaatgatg ccctgtctga gtgtacaagc agatttgtaa        180
        cccagtatcc atgtatgata aagggatgta cttcagttgt tacaagtgaa agcaatataa        240
        ttagacatta taagtgccat aaattatcta aggcatttac atcacaacac cgaaatcttc        300
60      ttattgtatt caaacggtgt tgcaactcac aagtaaagga aacgtctgag caagaaggtg        360
        ctaagaatga tgtgaaagat tctgacacgt gtgtatcaga gagcaatgat aattcaagaa        420
        caacagctac agtttcacaa aaggaagttg aaaaaaatga aaaagatgaa atggatgaac        480
        taacagaatt gtttattaca aaattaataa atgaagatag cacaagtgta gagacccaag        540
```

```
          ctaatacttc ttcaaatgta agtaatgatt ttcagggaag atacctctgc cagtccgaaa      600
          gacaaaaagc cagtaatttg aagaagagtt aataanggaa aaaaatgtct cacaaaataa      660
          aaaaaggaaa gttgaaaaag ctgaaccagc atcagcagct gagttaagta gcgtgccgtn      720
          aagaaaaana aactgctgtt ggcattcaac cattgaggag cattctgctt ctttgactgg      780
   5      agctctttta agccaatggg aattgaagtn tcttttttga aatttttgan gagtctgcag      840
          tngaacccaa aaaaaaatcc tgccaaaaac ccttccgaat actgggaaac aaaaaaaggg      900
          tnccctttca aattcaaaaa aaaaatattg gttaanactg nttgggacaa angggaaaaa      960
          a                                                                      961

  10          <210> 131
              <211> 786
              <212> DNA
              <213> Homo sapiens

  15          <400> 131
          gcttttggcc aggttaattc atgtcaacaa caaaaaaata taatgaaagt ttcacaattc       60
          tagcatgctt gatggcttcc tatttaaaat aaaatggtaa atgatgtatt tatactacat      120
          taattatcag tactgacctc tgcctgtggc tttacctata ctgatatctt tcataacaga      180
          catatctgga tcatttgaat gtacttcaag ttttttcaga ctgacggtag gtttcatttc      240
  20      ctgaagttgc tttaagacaa gctcagtgca atctttaaga ttcttgtcta aaacaatttt      300
          tacattatca ctgcactgaa gctgtgatgg attggcaaac tgtacaaacg tttcgctttc      360
          tttacaagga catacatgat ttccactagt cacagcagtc ttatcaatat ttttctctga      420
          atttgaatgg gatccttttt tgtttccagt attcggatgg nctttgcagt attttcttc       480
          tgcttcactg cagactcctc aagaaacttc agaaatgatc ttcaaatccc attggcttaa      540
  25      aaagagctnc agtcaaaaag atgcaaggan ctcctcaatg ggtngaatgg caccagcagt      600
          ttcttnttct ttacccncgc tncttaactc agctgntgga tgctgggtca acctttttca      660
          acttttcctt tttttatttt gngaganatt nttttcctta ttaaccctct tcaaatacct      720
          ggctttttgg ctttctgact gggcanaagg ttttnttccg gaaaatcatt ccttacattt      780
          gaagaa                                                                 786

  30          <210> 132
              <211> 974
              <212> DNA
              <213> Homo sapiens

  35          <400> 132
          ttcatgaaat gactcctgaa gaaattgaaa gtatgactgc ttcagtggat gttgggaagt       60
          ttccatgtga ccagttagag tgtaaatctt catttactac atatttgaac tatgttgttc      120
          atctagaggc agaccacggg attggactaa gggcaagtaa aacagaagaa gatggtgtat      180
  40      acaaatgtga ttgtgaaggc tgtgaccgta tatatgcaac ccggtcgaat ctcctccgac      240
          acatttttaa taagcataat gacaaacata aggctcattt gattcgtcca agaagattaa      300
          caccaggcca ggaaaaatatg tcaagcaagg caaaccaaga aaaatcaaag tctaaacatc      360
          gggggaccaa gcacagcaga tgtggaaagg aaggaataaa aatgcccaag accaaacgaa      420
          agaaaaaaaa taatttagaa aacaagaatg caaagattgt gcagattgaa gaaaataagc      480
  45      cttattctct gaaacgtggg aagcatgtat attctataaa ggctanaaat gatgccctgt      540
          ctgagtgtac aagcagattt gtaacccaat atccatgtat gataaaggga tgtacttcag      600
          ttgttacaag tgaaagcaat ataattagac attataagtn ccataaatta tctaaggcat      660
          tacatcacac acccgaaatn ttnttattgt tttcaaacng ggtttgcact ccaagtaaag      720
          gaaacgtctg accagaaggn gctaaaaatg atgtgaaaga ttctgaccgt gtgtttcaga      780
  50      aaaccaatgt tatttcaaga accaccagct ncngnttcac aaaaaggaag tttgaaaaaa      840
          aatgaaaaag atgaaatggg tgacctaccc naattgtttn ttccnaattt attaaatgaa      900
          naatgcccca gtgttnagac cccancttaa acttttcaa atgtaagtat ngttttcagg      960
          gaaanaacct ttgc                                                        974

  55          <210> 133
              <211> 760
              <212> DNA
              <213> Homo sapiens

  60          <400> 133
          cacaaatcag atctacctgc attttcagca gaggtcgaag aggaaagtga agctggtnan       60
          gaaagtgang aaactgaaac taaacaaact ttgaaagaat ttcgatgtcn ggtnagtgac      120
          tgttctcgaa ttttccaagc aattactggc ctaatacaac actacatgaa acttcatgaa      180
```

```
atgactcctg aagaaattga aagtatgact gcttcagtgg atgttgggaa gtttccatgt    240
gaccanttag agtgtaaatc ttcatttact acatatttga actatgttgt tcatctagag    300
gcagaccacg ggattggact aagggcaagt aaaacagaag aagatggtgt atacaaatgt    360
gattgtgaag gctgtgaccg tatatatgca acccggacga atctcctccg acncattttt    420
aataagcata atgacaaaca taaggctcat ttgattcgtc caagaagatt aacaccaggc    480
caggaaaata tgtnaagcaa ggcaaaccaa gaaaaatcaa agtctaaaca tcgggggacc    540
aagcacagna aatgtggaaa ggaaggaata aaaatgcccc gaccaacgaa agaaaanaaa    600
taatttagaa aacaagaatg caaagattgg gcaaattgga anaaaataag ccttatttttc   660
tgaaacgtgg gaagcatgtn tattctatta aggctaanaa atgaagccct gtctgagtgt    720
ccaagcagaa tttgtaaccc cngattcctg tatganaaaa                          760
```

```
<210> 134
<211> 823
<212> DNA
<213> Homo sapiens
```

```
<400> 134
ggccaggtta attcatgtca acaacaaaaa aatataatga aagtttcaca attctagcat    60
gcttgatggc ttcctattta aaataaaatg gtaaatgatg tatttatact acattaatta    120
tcagtactga cctctgcctg tggctttacc tatactgata tctttcataa cagacatatc    180
tggatcattt gaatgtactt caagtttttt cagactgacg gtaggtttca tttcctgaag    240
ttgctttaag acaagctcag tgcaatcttt aagattcttg nctaaaacaa tttttacatt    300
atcactgcac tgaagctgtg atggattggc aaactgtcaa acgtttcgct ttctttcaag    360
gacatacatg atttccacta gtcacagcag tcttatcaat attttttctt gaatttgaat    420
gggatccttt tttgtttcca gtattcggat ggtctttgca gtattttttct tctgcttcac    480
tgnagactnc tcaagaaact tcagaaatga tcttcaaatc ccattgggct taaaaganct    540
ccagtcaaaa agatgcnagg atgctcctca tggnttgaat ggcaacagca agtttnttnt    600
tctttacnca cgctacttaa ctcanctgnt gatgctggnt caacttttttc aactttcctt    660
ttttatttng ngagacatnt tttnctttta cctctcttca aatacttgct tttggctttc    720
tgacgggaga ggtttcttcc gaaaacattt cttcnatttg aanaagttta acttgggcnc    780
ttcactnggc ctttcttcnt tattaatttg gaaaaaacaa tct                      823
```

```
<210> 135
<211> 714
<212> DNA
<213> Homo sapiens
```

```
<400> 135
ggccaggtta attnttgtca acaacaaaaa aatataatga aagtttcaca attctagcat    60
gcttgatggc ttcctattta aaataaaatg gtaaatgatg tatttatact acattaatta    120
tcagtactga cctctgcctg tggctttacc tatactgata tctttcataa cagacatatc    180
tggatcattt gaatgtactt caagtttttt cagactgacg gnaggtttca tttcctgaag    240
ttgctttaag acaagctcag ngcaatcttt aagattcttg nctaaaacaa tttttacatt    300
atcactgcac tgaagctgtg atggattggc aaactgtaca aacgtttcgc tttctttaca    360
aggacataca tgatttccac tagtcacagc agtcttatca atatttttttc ttgaatttga    420
atgggatcct tttttgtttc cagtattcgg atggnctttg ncaanatttt tcttctgctt    480
cactgcagac tnctcaagaa acttcaaaaa tgatcttcaa aacccattgg cttaaaagag    540
ctccagtcaa aagatgcnag atgctcctca tgggtgaat ggcacagcag tttcttcttc    600
tttaccncac gctacttaac tcanctgctg atggctgggt caactttttc aactttcctt    660
ttttatttgg ggagacattt tttccttata actctctcaa aaactgcttt tggc          714
```

```
<210> 136
<211> 2441
<212> DNA
<213> Homo sapiens
```

```
<400> 136
taagaatcgt tcaattggag cagcagctaa aagccaggta atttctaatg caaagaacac    60
agtccaagga tttaaaagat tccatggccg agcattctct gatccatttg tggaggcaga    120
aaaatctaac cttgcatatg atattgtgca gttgcctaca ggattaacag gtataaaggt    180
gacatatatg gaggaagagc gaaattttac cactgagcaa gtgactgcca tgctttttgtc   240
caaactgaag gagacagccg aaagtgttct taagaagcct gtagttgact gtgttgtttc    300
ggttccttgt ttctatactg atgcagaaag acgatcagtg atggatgcaa cacagattgc    360
```

48

```
        tggtcttaat tgcttgcgat taatgaatga aaccactgca gttgctcttg catatggaat    420
        ctataagcag gatcttcctg ccttagaaga gaaaccaaga aatgtagttt ttgtagacat    480
        gggccactct gcttatcaag tttctgtatg tgcatttaat agaggaaaac tgaaagttct    540
        ggccactgca tttgacacga cattgggagg tagaaaattt gatgaagtgt tagtaaatca    600
5       cttctgtgaa gaatttggga agaaatacaa gctagacatt aagtccaaaa tccgtgcatt    660
        attacgactc tctcaggagt gtgagaaact caagaaattg atgagtgcaa atgcttcaga    720
        tctccctttg agcattgaat gttttatgaa tgatgttgat gtatctggaa ctatgaatag    780
        aggcaaattt ctggagatgt gcaatgatct cttagctaga gtggagccac cacttcgtag    840
        tgttttggaa caaaccaagt taaagaaaga agatatttat gcagtggaga tagttggtgg    900
10      tgctacacga atccctgcgg taaaagagaa gatcagcaaa tttttcggta aagaacttag    960
        tacaacatta aatgctgatg aagctgtcac tcgaggctgt gcattgcagt gtgccatctt   1020
        atcgcctgct ttcaaagtca gagaattttc tatcactgat gtagtaccat atccaatatc   1080
        tctgagatgg aattctccan ctgaagaagg gtcaagtgac tgtgaagtct tttccaaaaa   1140
        tcatgctgct cctttctcta aagttcttac attttataga aaggaacctt tcactcttga   1200
15      ggcctactac agctctcctc aggatttgcc ctatccagat cctgctatag ctcagttttc   1260
        agttcagaaa gtcactcctc agtctgatgg ctccagttca aaagtgaaag tcaaagttcg   1320
        agtaaatgtc catggcattt tcagtgtgtc cagtgcatct ttagtggagg ttcacaagtc   1380
        tgaggaaaat gaggagccaa tggaaacaga tcagaatgca aaggaggaag agaagatgca   1440
        agtggaccag gaggaaccac atgttgaaga gcaacagcag cagacaccag cagaaaataa   1500
20      ggcagagtct gaagaaatgg agacctctca agctggatcc aaggataaaa agatggacca   1560
        acccccaag ccaagaaggc aaaagtgaag accagtactg tggacctgcc aatcgagaat   1620
        cagctattat ggcagataga cagagagatg ctcaacttgt acattgaaaa tgagggtaag   1680
        atgatcatgc cggataaact ggagaaggag cggaatgatg cttaanaacg cagtggagga   1740
        atatgtgtat gaaatgagaa gccaagctta agtgggtgaa tataaaaagt ttgtgagtga   1800
25      anattgatcg taccagtttt tactttgaaa ctggaagata cttgaaaatt ggttgatgag   1860
        gatggagaag accagccaaa gcaagtttat gttgataagt gggctgaatt aaaaaaatnta   1920
        ggtcaaccta ttaagatacg tttccaggaa tttgaagaac gaccaaaaat tatttgaaga   1980
        actagggaaa cagatccacc agtatatgaa aataatcagc tctttcaaaa acaaggagga   2040
        ccagtatgat catttggatg ctgctgacat gacaaaggta gaaaaaagca caaatgaagc   2100
30      aatggagtgg atgaataaca agctaaatct gcagaacaag cagagtttga ccatggatcc   2160
        agttgtcaag tcaaaagaga ttgaagctaa aattaaggag ctgacaagta cttgtagccc   2220
        tataattta aagcccaaac ccaaagtgga acctccaaaa gagggccana aaatgcntnc   2280
        cagaanggcc cngtggatgg acaaggagac aacccaggcc cccaggntgn tgagcagggt   2340
        acagacacag ctgtgccttc ggattcagac aagaagcttc ctgaaatgga cattgattga   2400
35      ttccaacact tgtttctatt aaaacagagn atnataaagc t                        2441
```

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        <210> 137
        <211> 1026
        <212> DNA
40      <213> Homo sapiens


        <400> 137
        gtgactgtga agtcttttcc aaaaatcatg ctgctccttt ctctaaagtt cttacatttt     60
        atagaaagga acctttcact cttgaggcct actacagctc tcctcaggat ttgccctatc    120
45      cagatcctgc tatagctcag ttttcagttc agaaagtcac tcctcagtct gatggctcca    180
        gttcaaaagt gaaagtcaaa gttcgagtaa atgtccatgg catttttcagt gtgtccagtg    240
        catctttagt ggaggttcac aagtctgagg aaaatgagga gccaatggaa acagatcaga    300
        atgcaaagga ggaagagaag atgcaagtgg accaggagga accacatgtt gaagagcaac    360
        agcagcagac accagcagaa aataaggcag agtctgaaga aatggagacc tctcaagctg    420
50      gatccaagga taaaaagatg gaccaacccc caagccaag aaggcaaaag tgaagaccag    480
        tactgtggac ctgccaatcg agaatcagct attatggcag atagacagag agatgctcaa    540
        cttgtacatt gaaaatgagg gtaagatgat catgccggat aaactggaaa aggagcggaa    600
        tgatgcttaa naacgcagtg gaggaatatg tgtatgaaat ganaagacaa gcttagtggt    660
        gaatttgaaa aagttgtga agtgaagatg atcgtaacag ttttactttt gaaactggga    720
55      agatactgaa aattggttgt ttgangatgg agaaaaccaa cccaagcaag ttttttgttgg    780
        ttaagttggc tgaattaaaa aattaggtca acctattaaa anacctttnc cgggaatttg    840
        aagaacgccc caaattttttt ggaagaactt tggggaaacc gantccaacc gttttttgnaa    900
        aatnatcagc ttttttcaaa accagggngg accngtttga ncatttggat gcctgtgggn    960
        attgacaaag gtggaaaaaa gccccaatga acccatnggg gngggtgnaa taacaaactt   1020
60      aatttg                                                                1026


        <210> 138
        <211> 797
```

```
        <212> DNA
        <213> Homo sapiens

        <400> 138
 5      agctttatna tnctctgttt taatagaaac aagtgttgga atcaatcaat gtccatttca    60
        ggaagcttct tgtctgaatc cgaaggcaca gctgtgtctg taccctgctc ancancctgg   120
        gggcctgggt tgtctccttg tccatccacn gggccnttct ggnangcatt ttntggccct   180
        ctttttggagg ttccactttg ggtttgggct ttgaaattat agggctacaa gtacttgtca  240
        gctccttaat tttagcttca atctcttttg acttgacaac tggatccatg gtcaaactct   300
10      gcttgttctg cagatttagc ttgttattca tccactccat tgcttcattt gtgctttttt   360
        ctacctttgt catgtcagca gcatccaaat gatcatactg gtcctccttg tttttgaaag   420
        agctgattat tttcatatac tggtggatct gtttccctag ttcttcaaat aatttttggt   480
        cgttcttcaa attcctggaa acgtatctta ataggttgac ctanattttt taattcagcc   540
        cacttatcaa cataaacttg ctttggctgg tcttctccat cctcatcaac caatttttcaa  600
15      gtatcttcca gtttcaaagt aaaaactggt acgatcaatn ttcactcaca aacttttat    660
        attcacccac ttaagcttgg cntctcattt catacacata atccctcact gngttcttaa   720
        caatcattcc cctccttctt caatttatcc ggcatgaaca acttaccctc attttcnatg   780
        tacaagtgag catcttt                                                   797

20      <210> 139
        <211> 851
        <212> DNA
        <213> Homo sapiens

25      <400> 139
        gttgtttcgg ttccttgttt ctatactgat gcagaaagac gatcagtgat ggatgcaaca    60
        cagattgctg gtcttaattg cttgcgatta atgaatgaaa ccactgcagt tgctcttgca   120
        tatggaatct ataagcagga tcttcctgcc ttagaagaga aaccaagaaa tgtagttttt   180
        gtagacatgg gccactctgc ttatcaagtt tctgtatgtg catttaatag aggaaaactg   240
30      aaagttctgg ccactgcatt tgacacgaca ttgggaggta gaaaatttga tgaagtgtta   300
        gtaaatcact tctgtgaaga atttgggaag aaatacaagc tagacattaa gtccaaaatc   360
        cgtgcattat tacgactctc tcaggagtgt gagaaactca agaaattgat gagtgcaaat   420
        gcttcagatc tcccttgag cattgaatgt tttatgaatg atgttgatgt atctggaact   480
        atgaatagag gcaaatttct ggagatgtgc aatgatctct tagctagagt ggagccacca   540
35      cttcgtagtg ttttggaaca aaccaagtta aagaaagaag atatttatgc agtggagata   600
        gttggtggtg ctacacgaat ccctgcggta aaagagaaga tcagccaaat ttttcggtaa   660
        aagaacttag tnccaacatt naatgctgat tgaanctgtc ctccaaggct gggccattgc   720
        angtngngcc catnttatcc cccttncttt caaaggtcag aagaaatttt cntatcactt   780
        ggtgnagnac cnttattcca atnttttttg gaangggaan tcttccccnc ttgaanaaan   840
40      ggtcaaaggg a                                                         851

        <210> 140
        <211> 915
        <212> DNA
45      <213> Homo sapiens

        <400> 140
        taagaatcgt tcaattggag cagcagctaa aagccaggta atttctaatg caaagaacac    60
        agtccaagga tttaaaagat tccatggccg agcattctct gatccatttg tggaggcaga   120
50      aaaatctaac cttgcatatg atattgtgca gttgcctaca ggattaacag gtataaaggt   180
        gacatatatg gaggaagagc gaaattttac cactgagcaa gtgactgcca tgcttttgtc   240
        caaactgaag gagacagccg aaagtgttct taagaagcct gtagttgact gtgttgtttc   300
        ggttccttgt ttctatactg atgcagaaag acgatcagtg atggatgcaa cacagattgc   360
        tggtcttaat tgcttgcgat taatgaatga aaccactgca gttgctcttg catatggaat   420
55      ctataagcag gatcttcctg ccttagaaga gaaaccaaga aatgtagttt ttgtagacat   480
        gggccactct gcttatcaag tttctgtatg tgcatttaat agaggaaaac tgaaagtttc   540
        tggccactgc atttgacacg acattgggag gtagaaaatt tgatgaagtg ttagtaaatc   600
        acttctgtga agaatttggg gaagaaatc aaagctagac catttaagtc ccaaaaatcc   660
        gtgcattntt accgactctn ntcagggagt gtggagaaaa ctcaagaaat ttggatgang   720
60      tgccnaatgc ctttcagatc ttcctttgga gccattgaat gttttattga aatgatggtt   780
        gatgtatttt gggaactttt gaatttgang gcaaaatttt cttggggaat gtggccaatg   840
        antcntnntt naccttagag ggggggggccc cccccnttcc ctagngngtt ttggggaccc   900
        naacccactt ttaag                                                     915
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<210> 141
<211> 876
<212> DNA
<213> Homo sapiens

<400> 141
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tgatattgtg cagttgccta caggattaac aggtataaag gtgacatata tggaggaaga   120
gcgaaatttt accactgagc aagtgactgc catgctttg tccaaactga aggagacagc   180
cgaaagtgtt cttaagaagc ctgtagttga ctgtgttgtt tcggttcctt gtttctatac   240
tgatgcagaa agacgatcag tgatggatgc aacacagatt gctggtttta attgcttgcg   300
attaatgaat gaaaccactg cagttgctct tgcatatgga atctataagc aggatcttcc   360
tgccttagaa gagaaaccaa gaaatgtagt ttttgtagac atgggccact ctgcttatca   420
agtttctgta tgtgcattta atagaggaaa actgaaagtt ctggccactg catttgacac   480
gacattggga ggtagaaaat ttgatgaagt gttagtaaat cacttctgtg aagaatttgg   540
gaagaaatac aagctagaca ttaagtccaa aatccgtgca ttattacgac tctctcagga   600
gtgtgagaaa ctcaagaaaa ttgatgaagt gcaaatgctt cagatctccc ttttgagcat   660
tgaatggttt atgaatgatg ttgatgtatc ttggaactat gaaatagang cnaatttctn   720
ggagaaggtg ccaatgatct cttaacctaa agtgggaccc cccctttcgt agtggtttn   780
ggaaccaaac caagnttaaa gnaaagaaga atntttatgc cgtgggaaaa naagttggng   840
ggggctacac cnaatnccct gggggtaaaa agaaaa   876

<210> 142
<211> 531
<212> DNA
<213> Homo sapiens

<400> 142
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aggcaaattt ctggagatgt gcaatgatct cttagctaga gtggagccac cacttcgtag   180
tgttttggaa caaaccaagt aaagaaaga agatatttat gcagtggaga tagttggtgg   240
tgctacacga atccctgcgg taaaagagaa gatcagcaaa ttttttcggta aagaacttag   300
tacaacatta aatgctgatg aagctgtcac tcgaggctgt gcattgcagt gtgccatctt   360
atcgcctgct ttcaaagtca gagaattttc tatcactgat gtagtaccat atccaatatc   420
tctgagatgg aattctccan ctgaagaagg gtcaagtgac tgtgaagtct ttttcaaaaa   480
tcatgctgct cctttctcta aagttcttac attttataga aaggaaccct t   531

<210> 143
<211> 718
<212> DNA
<213> Homo sapiens

<400> 143
agaagatgca tttaaaatat gggttatttt caacttttta tctgaggaca agtatccatt   60
aattattgtg tcagaagaga ttgaatacct gcttaagaag cttacagaag ctatgggagg   120
aggttggcag caagaacaat ttgaacatta taaaatcaac tttgatgaca gtaaaaatgg   180
cctttctgca tgggaactta ttgagcttat tggaaatgga cagtttagca aaggcatgga   240
ccggcagact gtgtctatgg caattaatga agtctttaat gaacttatat agatgtgtt   300
aaagcagggt tacatgatga aaaagggcca cagacggaaa aactggactg aaagatggtt   360
tgtactaaaa cccaacataa tttcttacta tgtgagtgag gatctgaagg ataagaaagg   420
agacattctc ttggatgaaa attgctgtgt agagtccttg cctgacaaag atggaaagaa   480
atgccttttt ctcgtaaaat gttttgataa gacttttgaa atcagtgctt tcagataaga   540
agaagaaaca ggagtggatt caagccattc attctactat tcatctgttg aagctgggca   600
gccctccacc acacaaagaa acccgccacg tcggaaagaa ctccggaaga aagcanctgg   660
ctgaaccaag aaggaactgg gaccacaaat gnaaggaact ttcaggccgc caaccaaa   718

<210> 144
<211> 537
<212> DNA
<213> Homo sapiens

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           <400> 144
           gttttgtttt gagatggagt ctcactctgt tgcccaagct ggagtacaac ggcataatct        60
           cagctcgctg caacctccgc ctcccacgtt caagtgattc tcctgcctca gcctcccaag       120
           tagctgggat tacaggcgcc cgccaccaag ctcagctaat ttttttttgta tttttagtag     180
     5     agacagggtt tcaccaggtt ggccaggctg gtcttgaact cctgacctca ggtgatccac       240
           ccgcctcggc ctcccaaagt gctgggatta caggcgtgag ccaccacgcc cggcccccaa       300
           agctgtttct tttgtcttta ncgtaaagct ctcctgccat gcagtatcta cataactgac       360
           gtgactgcca gcaagctcag tcactccgng gtcttttttct cttttccagat cttctttctc     420
           tcttcaaagt tctgcctcaa tggaaagctt gcaggtcccc cagttagnga tcaggtgagg       480
    10     ggtctttgaa cctggttnta tnaggtcgaa ttaatcctta tgatgggcca cttttttg         537


           <210> 145
           <211> 432
           <212> DNA
    15     <213> Homo sapiens


           <400> 145
           atgacactaa ggccccaaca tcgcgggacc tgctgtggcg cggattctta ggaacgctgt        60
           tctagccggc cccctctcca ggggtcgccg tggccggcat tatttcctag ttcttcttgt       120
    20     aaccctgagg tgccagcgcg gggagtgagg aggggtcagg gggctaagga tgcaacctct         180
           gacgttctgc gccttcctag gagagtctta catgtgttga gatttcacaa gcaatgcgag       240
           ttgtaaaata ccagctctac aagaagctag gctctgtgac ggcatagttt tcagtagctt        300
           tatcacaata ttcacaatgg agaattatat gacatggtag cagaaatagg cccttttatg      360
           tgttgcttct attttacctc aaattgtaga tatagggtaa tcaataaaat ccatccatgc       420
    25     ctttcacacc ct                                                           432


           <210> 146
           <211> 768
          ·<212> DNA
    30     <213> Homo sapiens


           <400> 146
           gtgaagaaga agaagaaata gaaccatttc cagaagaaag ggagaacttt cttcagcaat        60
           tgtacaaatt tatggaagat agaggtacac ctattaacaa acgacctgta cttggatatc       120
    35     gaaatttgaa tctctttaag ttattcagac ttgtacacaa acttggagga tttgataata        180
           ttgaaagtgg agctgtttgg aaacaagtct accaagatct tggaatccct gtcttaaatt        240
           cagctgcagg atacaatgtt aaatgtgctt ataaaaaata cttatatggt tttgaggagt       300
           actgtagatc agccaacatt gaatttcaga tggcattgcc agagaaagtt gttaacaagc       360
           aatgtaagga gtgtgaaaat gtaaaagaaa taaagttaa ·ggaggaaaat gaaacagaga        420
    40     tcaaagaaat naagatggag gaggagagga atataatacc aagagaagaa aagcctattg        480
           aggatgaaat tgaaagaaaa gaaaatatta agccctctct gggaagtaaa aagaatttat       540
           tagantctat acctacacat tctgatcagg aaaaagaagt taacattaaa aaaaccagaa       600
           gacaatgaaa atctggatga ccaaagatga tgaccaactn ngggtagatg aaatccctca       660
           acataaaagg gtagaaagct ggaggaaaga aaaagccaaa atctgggttn cgatgaatgg       720
    ·45    gtttaaagcn cgattaaaat agntaaggac cctgcttgat naaaaatg                    768


           <210> 147
           <211> 921
           <212> DNA
    50     <213> Homo sapiens


           <400> 147
           gttgtttacc actgttgctt tatggcttct tttctgcttt tttgatgaac ttcctcctcc        60
           ctgagcatct ttcactcttt tctgacctgt acaggctttt tcaggatgtt ctggttctgg       120
    55     ctgattacta ctgcttgagc tcacactggc atcaaaacct gctggcgagc tattcccttc       180
           agactggagg tcttggagct ccccagcaac actatccacc tcaattgtgc tatcagtttc       240
           actcttgata cttcgaacct cttcttggtt tggagccagt ggttctgata ctgttacaga       300
           agactgctgc cggctgcctt ntgttacagt gactgatgaa ggcgattcag gtgtagtagg       360
           aggggtattt aagcactgaa ttactgccac tacttggaaa ttctgctttt ctgcattgac       420
    60     ctctactggt ttttcttcaa tgggtttact atcgacattg actggaggng gnttttctag        480
           ttctacactg ggtgaacaac tctcctcttn aaccacagtc tgcagtgact cctctgnccc       540
           ccctcctttg gggcaagatg cggngggggaa nctgcaccct antatcaaaa tctgaaaaaa       600
           cnctttcaac ggtttttang cccctgtcct gaatacttga ccanacaatc ttttngaacc.      660
```

```
        ttggccctgc tgtttttgaag ntttcatcaa aagttnttta aaaggtaatc cttttttttgg    720
        cncttcntga aaatcctgaa nanaaaccnn ttgntccgan anantttttt ttttctccaa    780
        accattggat tcttaanngg gggcanctcg ntttggntct tntcanctca tctgaaanct    840
        ggggtcctgg tttcnagcca aaggaaantt ggtnttggcc tncttttcnt ttttgccagg    900
        gacccanttt taaanccttt t                                              921
```

```
        <210> 148
        <211> 805
        <212> DNA
        <213> Homo sapiens
```

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        <400> 148
        ctattaacaa acgacctgta cttggatatc gaaatttgaa tctctttaag ttattcagac     60
        ttgtacacaa acttggagga tttgataata ttgaaagtgg agctgtttgg aaacaagtct    120
        accaagatct tggaatccct gtcttaaatt cagctgcagg atacaatgtt aaatgtgctt    180
        ataaaaaata cttatatggt tttgaggagt actgtagatc agccaacatt gaatttcaga    240
        tggcattgcc agagaaagtt gttaacaagc aatgtaagga gtgtgaaaat gtaaaagaaa    300
        taaaagttaa ggaggaaaat gaaacagaga tcaaagaaat aaagatggag gaggagagga    360
        atataatacc aagagaagaa aagcctattg aggatgaaat tgaaagaaaa gaaaatatta    420
        agccctctct gggaagtaaa aagaatttat tagaatctat acctacacat tctgatcagg    480
        aaaaagaagt taacattaaa aaaccagaag acaatgaaaa tctggacgac aaagatgatg    540
        acacaactag ggtagatgaa tccctcaaca taaaggtaga agctgaggaa gaaaaagcaa    600
        aatctggaga tgaaacgaat aaagaagaag atgaagatga tgaagaagca gaagaggagg    660
        aggaggagga agaanaaaga agaggatgaa gatgatgatg accaaccaat ggaggaagan    720
        gagtttgagt gctatccacc aggcnntgaa agtccaagtn ccggtntgga ccaagggaaa    780
        aattcaaaaa atgtntgaag cttgt                                          805
```

```
        <210> 149
        <211> 665
        <212> DNA
        <213> Homo sapiens
```

```
        <400> 149
        ccgacatcan aatctttaat actagcttca tacatttttt gattttttcc tcgtccatac     60
        cgcacttgga ctttcatgcc tgggggatag cactcaaact cctcttcctc atngnnggca    120
        tcatcatctt catcctnttc ttcttcttcc tcctcctcct cctnttctgc ttcttcatca    180
        tcttcatctt cttctttatt cgttncatct ccanattttg cttttttcttc ctcagcttct    240
        acctttatgt ngagggattc atctacccta gtngggtcat catctttggc gcccaaattt    300
        tcattggctt ctggtttttn aatgntaact tctttttcct gancanaatg ggtaggnata    360
        nattctaata aattctttt acttcccana nagggcttaa tattttcttt tctttcaatt    420
        tcatcctcaa taggctttc ttctctnggn attatatncc ccncctcctc cntctttatt    480
        tctttgancc cnggtcattt tcctccttaa cttttatttn ttttacattt tcncactcct    540
        tacattgntn ggtaacaact ttctttggca atgccatctg aaattcaatg nttggctgan    600
        ctacagnnct cctcaaaacc atataaagtt ttttttataa agcccattta acnttggttc    660
        cctgc                                                               665
```

```
        <210> 150
        <211> 827
        <212> DNA
        <213> Homo sapiens
```

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        <400> 150
        tgtggtttcc tgcattggtg gtttgtcctg attgtagtga tgagattgct gtaaaaaagg     60
        acaatattct tgttcgatct ttcaaagatg gaaatttac ttcagttcca agaaaagatg    120
        tccatgaaat tactagtgac actgcaccaa agcctgatgc tgttttaaag caagcctttg    180
        aacaggcact tgaatttcac aaaagtagaa ctattcctgc taactggaag actgaattga    240
        aagaagatag ctctagcagt gaagcagagg aagaagagga ggaggaagat gatgaaaaag    300
        aaaaggagga taatagcagt gaagaagagg aagaaataga accatttcca gaagaaaggg    360
        agaactttct tcagcaattg tacaaattta tggaagatag aggtacacct attaacaaac    420
        gacctgtact tggatatcga aatttgaatc tctttaagtt attcagactt gtacacaaac    480
        ttggaggatt tgataatatt gaaagtggag ctgtttggaa acaagtctac caagatcttg    540
        gaatccctgt cttaaattca gctgcaggat acaatgttaa atgtgcttat aaaaaatact    600
        tatatggttt tgagggagta ctgtagatca gccaacattg aatttcagat ggcattgcca    660
```

```
      gagaaagttg ttaacaagca atgtaaggga gtgtgaaaat gtaaaagaaa taaaagttaa        720
      ngngggaaaa tggaaccnga ggatcaaaga aattaaagat gggnggggang gagagggaat        780
      nttattnccc ggagaagaaa aagcccttt ggagggatga aaattgg                       827


          <210> 151
          <211> 811
          <212> DNA
          <213> Homo sapiens


          <400> 151
      agatgctctt tgcccctgc tgtcatcagt gtggtgaatt catcattggc cgagttatca        60
      aagccatgaa taacagctgg catccggagt gcttccgctg tgacctctgc caggaagttc        120
      tggcagatat cgggtttgtc aagaatgctg ggagacacct gtgtcgcccc tgtcataatc        180
      gtgagaaagc cagaggcctt gggaaataca tctgccagaa atgccatgct atcatcgatg        240
      agcagcctct gatattcaag aacgacccct accatccaga ccatttcaac tgcgccaact        300
      gcgggaagga gctgactgcc gatgcacggg agctgaaagg ggagctatac tgcctcccat        360
      gccatgataa aatgggggtc cccatctgtg gtgcttgccg acggcccatc gaaggggcgcg        420
      tggtgaacgc tatgggcaag cagtggcatg tggagcattt tgtttgtgcc aagtgtgaga        480
      aacccttct tggacatcgc cattatgaga ggaaaggcct ggcgtattgt gaaactcact        540
      ataaccagct atttggtgat gtttgcttcc actgcaatcg tgttatagaa ggngatgtgg        600
      tctctgctct taataaggcc tggtgcgtga actgctttgc ctgttctacc ttgcaacact        660
      taaattaaca ctcaagaata agttggtgg agtttgacat tgaaacccag tctnttaana        720
      agtgcttttt aanaaatttn catttggagc ttnaagaaaa agacnttaag aaaacttcct        780
      tganacccctt angaaaggga aataagntnc c                                       811


          <210> 152
          <211> 739
          <212> DNA
          <213> Homo sapiens


          <400> 152
      ccgacggccc gctgctggcc tccgtgacgc ngtctnctcc gcgcctcgcg gcatggcgtc        60
      ggaggggccg ngggagcccg aaagcgaggg catcaagtta tcaggcatat gtcaaaccat        120
      ttgtccccag atttgccggg ctcaatgtgg catggttaga gtcctcagaa gcatgtgtct        180
      tccccagctc tgcagccaca tactatccgt ttgttcagga accaccagtg acagaaatgt        240
      ntactcagtg cctggctccc agtatctta taaccaaccc agttgttacc gaggttttca        300
      aacagngaag catcgaaatg agaacacatg ccctctccca caagaaatga aagctctgtt        360
      taagaagaaa acctntgatg agaaaaaaac gtatgatcag caaaagtttg acagtgaaag        420
      ggctgatgga actatatcat ctgagataaa atcagctaga ggttcacatc atttgtccat        480
      ttacgctgag aatagtttga aatcagatgg ttaccataag cgaacagaca ggaaatccag        540
      aatcatttgc aaaaaatgga tctacctcca aacctgagtt tgaatttacc acactggact        600
      tttcctgaac tgcaangngc aagagaaaca atatgtcata agatccagaa agcaacccca        660
      agtgggggac ctggnccacn tntggctntt acccganatt tctttttta agaanaagta        720
      ggnnaaaccc agctgccgt                                                      739


          <210> 153
          <211> 665
          <212> DNA
          <213> Homo sapiens


          <400> 153
      gacctttaac aggctccgca gcactgaacg cctgcagaca ctgcttcatg tgcccttaa        60
      tgctgatcaa tttccagatt caacagttac acaaattaca ttgtcatgaa aaacagaaga        120
      aaaagcccca aagtcttttt cagacctccc ctccttaccc aaaatacaga cacacaggca        180
      agaactctca taaattcaaa ttcatcattt gagaggttga agcctccaag gattcttcta        240
      gctccagggt acatccactg tatgcttcca gatgttttt ccagatttca atgtagtgtg        300
      gctcttcttt ttctttcagg gctggggggc catcttctgc agggcagctg gggccctgtg        360
      tgggtaggct gggaggtgcc tgaggcctgg gctctccac cagctcctgc tgcacattct        420
      ccagcatggc ttgactggat ctttctggta catacggnct tggaaacgga ccanttcttt        480
      gagtagggtc ggtaacacaa gcatccactt tttttactaa agcatctggc tgcagtnatc        540
      cctgaatctg cggctggtgg atcttaggga aaggggtgt gattggganc aaaggggggga        600
      ggcctctgng ttcctttgga gctctggggc ctggnggctt tttcaaactt tggcctcaac        660
      ccgaa                                                                     665
```

```
<210> 154
<211> 597
<212> DNA
<213> Homo sapiens

<400> 154
gtgaactcca ctttgacaat tgaagaattt cattccaaac tgcaagaagc tactaacttc     60
ccactgagac cttttgtcat cccatttttg aaggccaact tgcccctgct gcagcgtgag    120
ctcctccact gcgcaagact ggccaaacag aaccctgccc agtacctcgc ccagcatgaa    180
cagctgcttc tggatgccag caccacctca cctgttgact cctcagagct gcttctcgat    240
gtgaacgaaa acgggaagag gcgaactcca gacagaacca agaaaatgg ctttgacaga    300
gagcctttgc actcagaaca tccaagcaag cgaccatgca ctattagccc aggccagcgg    360
tacaagtcca ataacggct tatcctacca gcccaatggc ctgcctcacc ctaccccacc    420
tccacctnag cattaccgtt tggatgatat ggccattgcc caccactaca gggactccta    480
tcgacacccc agccacaggg gacctcangg acagaaanag acctatgggg ttgcatggca    540
cacgtcaaga agaaatgatt gatcccagac taacagactg agaatgggcc tgnaaga      597

<210> 155
<211> 1003
<212> DNA
<213> Homo sapiens

<400> 155
ccattattgt atataaagaa cattgtgact tttaatatta gcatttttgc tttcaacagc .    60
aattagcaat ctcttggttt gctgtttggt aaagcatcgg ttaatgaggt catctagttt    120
aaaatcccag ctacttgaaa ataacaggga ggaggtcaaa tctatcattt catgttatat    180
tctctgctct cttttcagtt ctctaaagaa aagatatctt tgttatccac aataagtcat    240
tacgacccgt tactggccct ctgtgtttta ctaccacctc aagatacagt taggttctct    300
cttgctgaag tactgaaata ggataattca tctaataaac aaacaaacaa aaaaaacaac    360
tttgagcatc tgaggatgag gaattggttt cgcgttggtt gtgttgtctt cctccgaca    420
gttctgagtt cacgtctagc gagggggttgt ctctatggtg aaggggttc ccggggtggt    480
tgacctcgga gtggctgctg gtggtgtgtc catcgggctc ccagcccgc tgttgggcgt    540
gacaaaanga actgactgca ggtgtgtctc cctgctggtg ggccctgcan ggtctgtcca    600
caaaaggtga tggngcttct cccaatcttt ggnctggcna aaatggancc cccagttntc    660
cgggctgtgg ttacaagccc ctggcanggt ttcacctcgc ttttacnggn cnccaatttt    720
caaacaaacn tttgncttgg aaacccccc ggcggattgg aaaaacctgg ncaagtggcg    780
gttccccccc cccccttgcc gtttngggcc ttnggggaac cggngccctc catttttttgg    840
gccccctttg ngtggggaaa cnttgtcggg gggctttttcc cntcccccct taaaaaaccn    900
ggcttttttgg aanctcccnt aattggncng ggnccttan ccttttttgga cggcccccccc    960
aaatttttttt tccaaancttc ctttgggccc ttttttcaaan ccc                    1003

<210> 156
<211> 674
<212> DNA
<213> Homo sapiens

<400> 156
gtgaactcca ctttgacaat tgaagaattt cattccaaac tgcaagaagc tactaacttc     60
ccactgagac cttttgtcat cccatttttg aaggccaact tgccccctgct gcagcgtgag    120
ctcctccact gcgcaagact ggccaaacag aaccctgccc agtacctcgc ccagcatgaa    180
cagctgcttc tggatgccag caccacctca cctgttgact cctcagagct gcttctcgat    240
gtgaacgaaa acgggaagag gcgaactcca gacagaacca agaaaatgg ctttgacaga    300
gagcctttgc actcagaaca tccaagcaag cgaccatgca ctattagccc aggccagcgg    360
tacagtccaa ataacggctt atcctaccag cccaatggcc tgcctcaccc taccccacct    420
ccacctcagc attaccgttt ggatgatatg gccattgccc accactacag ggactcctat    480
cgacacccca gccacaggga cctcagggac agaaacagac ctatggggtt gcatggcaca    540
cgtcaagaag aaatgattga tcacagacta acagacagag aatggggcag aagagtggaa    600
acatcttgac catctgttaa actgcataat nggacatggt agaaaaaaca aaggngatct    660
cttaccgtac ttaa                                                       674

<210> 157
<211> 651
```

```
                <212> DNA
                <213> Homo sapiens

                <400> 157
   5    ccattattgt atataaagaa cattgtgact tttaatatta gcatttttgc tttcaacagc      60
        aattagcaat ctcttggttt gctgtttggt aaagcatcgg ttaatgaggt catctagttt     120
        aaaatcccag ctacttgaaa ataacaggga ggaggtcaaa tctatcattt catgttatat     180
        tctctgctct cttttcagtt ctctaaagaa aagatatctt tgttatccac aataagtcat     240
        tacgacccgt tactggccct ctgtgtttta ctaccacctc aagatacagt taggttctct     300
  10    cttgctgaag tactgaaata ggataattca tctaataaac aaacaaacaa aaaaaacaac     360
        tttgagcatc tgaggatgag gaattggttt cgcgttggtt gtgttgtctt tcctccgaca     420
        gttctgagtt cacgtctagc gaggggttgt ctctatggtg gaaggggttc ccggggtggt     480
        tgacctcgga gtggctgctg gtggtgtgtc catcgggctc ccagcccgc tgtgggcgt      540
        gacaaaagag ctgactgcag gggtgtctcc ctgctgctgg gcctgcangg tctgtccaca     600
  15    aatgtggatg gggcttntcc ccagcttttg ngctgggcaa atgagcccag t               651


                <210> 158
                <211> 803
                <212> DNA
  20            <213> Homo sapiens

                <400> 158
        caatgatgct acctgttctg acccatcata tccgctacca ccaatgccta atgcatttgg      60
        acaagttgat aggatatact ttccaagatc gttgtctgtt gcagctggcc atgactcatc     120
  25    caagtcatca tttaaatttt ggaatgaatc ctgatcatgc caggaattca ttatctaact     180
        gtggaattcg gcagcccaaa tacggagaca gaaaagttca tcacatgcac atgcggaaga     240
        aagggattaa caccttgata aatatcatgt cacgccttgg ccaagatgac ccaactccct     300
        cgaggattaa ccacaatgaa cggttggaat tcctgggtga tgctgttgtt gaatttctga     360
        ccagcgtcca tttgtactat ttgtttccta gtctggaaga aggaggatta gcaacctatc     420
  30    ggactgccat tgttcagaat cagcaccttg ccatgctagc aaagaaactt gaactggatc     480
        gatttatgct gtatgctcac gggcctgacc tttgtagaga atcggacctt cgacatgcaa     540
        tggccaattg ttttgaagcg ttaataggag ctgtttactt ggaggaagc ctggaggaag      600
        ccaagcagtt atttggacgc ttgctcttta atgatccgga cctgcgcgaa gtctggctca     660
        attatcctct tcacccactc caactacaag agccaaatac tgatcgacaa cttattggaa     720
  35    actttttcca gttctacaaa aaacttactg agtttgaaag aaaccaattg ggagtaaatt     780
        ttttactcat tggttccgac ttt                                             803


                <210> 159
                <211> 701
  40            <212> DNA
                <213> Homo sapiens

                <400> 159
        gcgatttgac tctgtatttt atttcaatga gcacacttcg ttcattgtct gcaggaaaac      60
  45    taggctaggt ctcaatagac aacagtcaca gttactgagc aagtaaatac tccacacttg     120
        catgccctcc tttatttctt gatgtcttca gtctcatctg gctctctctc ttgatgctct     180
        ctttcccacc tcatttcttt taactcttgt ctgtacttcc gttcgatgaa ccgcttctga     240
        tgggccatct ggggaaaatt atatttttca agcgcatcca ttgctgctcc catttccgct     300
        tgctgaatac ttggtccttt cccacagcct attctttctc ccttgaaata aacagccaca     360
  50    gtgtaggttc gggcatggga tgggcccact gtctgcagag tcttgtacaa aggaatgtct     420
        ggctcttttc cttctgccta agggcaagca acactgctga agctgggatt tggggcattc     480
        caatcctgat tcaaaatgaa ctcttttaat cgnggaaaga aacagacatt catgaaaagt     540
        atgaacatat tncaaatcct tatcaatgna cagcgctgca ataaatgatt ccaaaaggnc     600
        cnccanggct tggggcgaaa cccccaaggc cttttggctt ggcgtgggta ttggnggact     660
  55    cctggatgcc caagttcttc cgtaccttgg gcctgggttt t                          701


                <210> 160
                <211> 833
                <212> DNA
  60            <213> Homo sapiens

                <400> 160
        ggattaacac cttgataaat atcatgtcac gccttggcca agatgaccca actccctcga      60
```

```
ggattaacca caatgaacgg ttggaattcc tgggtgatgc tgttgttgaa tttctgacca    120
gcgtccattt gtactatttg tttcctagtc tggaagaagg aggattagca acctatcgga    180
ctgccattgt tcagaatcag caccttgcca tgctagcaaa gaaacttgaa ctggatcgat    240
ttatgctgta tgctcacggg cctgaccttt gtagagaatc ggaccttcga catgcaatgg    300
ccaattgttt tgaagcgtta ataggagctg tttacttgga gggaagcctg gaggaagcca    360
agcagttatt tggacgcttg ctctttaatg atccggacct gcgcgaagtc tggctcaatt    420
atcctctcca cccactccaa ctacaagagc caaatactga tcgacaactt attgaaactt    480
ctccagttct acaaaaactt actgagtttg aagaagcaat tggagtaatt tttactcatg    540
ttcgacttct ggcaagggca ttcacattga gaactgtggg atttaaccat ctgaccctag    600
gccacaatca gagaatggaa ttcctaggtg actccataat gcaactggta ccacagagta    660
cttattcatt catttcccag atcatcattg aaggacactt aacttttgtt gcgaaagctt    720
ctttgggtga aattaataag aacttcaggc ccaaaggtaa ccggaaggaa gcttgggcat    780
tgcagggaag taccccattt acccaaccgg accaagaacc caagaaggcc tgt            833
```

```
        <210> 161
        <211> 566
        <212> DNA
        <213> Homo sapiens

        <400> 161
        aaggaccaag gccaagaagg acaaagccca aagganntnt gnanctcncn nccgnggctn    60
        tgctccccac tctgagagtg atctaccaga gcaggaagag gagattctgg gatctgatga    120
        tgatgagcaa gaagatccta atgattattg taaaggaggt tatcatcttg tgaaaattgg    180
        agatctattc aatgggagat accatgtgat ccgaaagtta ggctggggac actttcaac    240
        agtatggtta tcatgggata ttcaggggaa gaaatttgtg gcaatgaaag tngttaaaag    300
        tgctgaacat tacactgaaa cagcactaga tgaaatccng ttgctgaagt cagttcgcaa    360
        ttcagaccct aatgatccaa atagagaaat ggttgttcaa ctactagatg actttaaaat    420
        atcaggagtt aatggaacac atatctgcat ggtatttgaa gtttttgggc atcatctgct    480
        caagtggatc atcaaatcca attatnaggg gcttccactg ccttgtgtna aaaaaattat    540
        tcancnagtg tttacagggt nttgat                                          566
```

```
        <210> 162
        <211> 445
        <212> DNA
        <213> Homo sapiens

        <400> 162
        gangcagccc ggacncagca agtttaatgt ctntgntgtn catanaatta anaccctttc    60
        cccctcctca tccttatgct ggcaatagga tatgcnctaa aaaatttgac tnttanagtc    120
        aatgaataaa aggatgggct catacacctt catagctntt ttcaaaaagg atgcttataa    180
        tttaaaggat gtcctaatgg gaaggaaagg tncngggcaa gaggctgttt cacattttan    240
        tccattagtc tttggcanag cccaaccaag gccaaattca cctaggatgc ccaatggctg    300
        tggggatntc cncagggtca agtaagcaaa cccaaatgaa catgttggat taaaaaaaaa    360
        acaagatctn aaaactttg aaggaanagc ttcccctgaa aagggaagag gaaaatgctt    420
        gaaggggaag ggcggagggt caatg                                          445
```

```
        <210> 163
        <211> 765
        <212> DNA
        <213> Homo sapiens

        <400> 163
        gagtttgcaa aggaattttg gaatatctta cagtggcaga ggtggtggag actatggaag    60
        atttggtcac ttacacaaag aatcttgggc caggaatgac taagatggcc aagatgattg    120
        acgagagaca gcaggagctc actcaccagg agcaccgagt gatgttggtg aactcgatga    180
        acaccgtgaa agagttgctg ccagttctca tttcagctat gaagattttt gtaacaacta    240
        aaaactcaaa aaaccaaggc atagaggaag ctttaaaaaa tcgcaatttt actgtagaaa    300
        aaatgagtgc tgaaattaat gagataattc gtgtgttaca actcacctct tgggatgaag    360
        atgcctgggc cagcaaggac actgaagcca tgaagagagc attggcctcc atagactcca    420
        aactgaacca ggccaaaggt tggctccgtg accctagtgc ctccccaggg gatgctggtg    480
        agcaggccat cagacagatc ttagatgaag ctggaaaagt tggtgaactc tgtgcaggca    540
        aaaaacgcag ggagantctg gggaacttgc aaaatgctng ggcagatgac tgtcaaagtg    600
        gcttgacctc cgtgccaaga ggacaaggat ccttacccgg ngggccatgc canaaaagct    660
```

naacanggta tnttcaaggt cttggantgt gctccccagc aaaagnggaa aaagccagct   720
tccaaagctg ggaaagcctt gcccacttna aaccaaaaca tttgc   765

        <210> 164
        <211> 487
        <212> DNA
        <213> Homo sapiens

        <400> 164
aatttgcttc actgtgtctc gagcactgat attggagaaa agcacatccg gcataaagtg   60
taaaccagtg tctcaaacca ctggaagaac cgggagagca aacatgattt ttcttatttc   120
ctctaagtaa tctttcttta gtaaaacaac aagtgatctt tggcatagat tcatacttta   180
aaggcattaa tattgcattt atatcaggca agcaactata caaatatgct gagggccttg   240
aaaataatca tcctcattat aaaggaaata gtgaaagcct gagtgtaaag gaccaactta   300
agttgtacac attcgatgtt gggaactaac acacagcgat gggtgggaag gaaggatgtt   360
caggcaaggt tcttactcct ttactcatct ggttctggct ttgggaaaaa ataaggtttc   420
atgtgctggg aaatacttag cagtaataag taccaaaaag gaaacactgn cctctcattt   480
tgcctag   487

        <210> 165
        <211> 826
        <212> DNA
        <213> Homo sapiens

        <400> 165
gcaaaaactt gtgatagaaa attttgatga tgagcagatt tggcaacaac tggaattgca   60
aaatgaacca attttacaat actttcagaa tgcagttagt gaaacaatta atgatgaaga   120
tatcagtctt ctcccagaga gtgaagaaca ggaacgtgaa gaggatggtt cagagataga   180
ggctgatgac aaggaggacc tagaagattt agaggaggag gaagtgtccg acatgggtaa   240
tgatgatcct gaaatgggtg agagagctga aaactcaagc aaatctgatc tgaggaaaag   300
ccccgttttc agtgatgagg attctgacct tgactttgat atcagcaaat tggaacagca   360
gagcaaggtg caaaacaaag gacagggaaa accaagagaa aagtccatag tagatgataa   420
attcttcaaa ctctctgaaa tggaggccta tttagaaaac atagaaaaag aagaggaacc   480
gaaaagatga taatgatgag gaggaggaag atattgattt ttttgaagat attgattctg   540
atgaagatga aggggggactg tttggaagta aaaaacttaa gtcaggtaaa agttccagaa   600
atctgaaata caaagatttt tttgatccag tttgaaaagt gatgaagacc ntacaaatgt   660
tcatgatgat gagctggatt caacccaaga aaatgatgaa atttgctgaa gaagaagcng   720
aagaacttag ttttttcgga aaccggttga agatgaatga ccttcaagaa aaatgaagan   780
ccnttaacca nccttaagga aagcttggaa aagaagngan cctttg   826

        <210> 166
        <211> 600
        <212> DNA
        <213> Homo sapiens

        <400> 166
ggcntcattg atttgcattt ttacttgatc ttggaattna aaaaaaaatg cttgnnaggn   60
ctttaaggnc ntgnctttac cttcatcctt tatnaaggaa gctttgccng ttttggncan   120
ctgttttaac ttntcccaan cnncnggttt gctggatttc cctgcttgan ctacnctggt   180
nttttnaanc ngntttctcc ncttctcctt ntntttattt ttcanncccn tttganattt   240
cttttccnt cncncncggt tcttggctgg agcnggtttt tcagcnnctg nttttatntc   300
nccnncttta tttttcnccn tgancnccnc nggggccnng aaagctgcat nactaacnct   360
cactggggct ncttccncca tggntatggn tgggaaattt gacncaactt taatctntgg   420
gcaggcggnt tagggataaa ggggaagttg anagggcctc cnattttaaa naanagggaa   480
ccntcatctt ctgaatttct ncatgnccgg attttttctt ctggnggttt tggcgggga   540
gttgaggnac nccngntcaa aaatttcnca aggngcaaat ttactctttt tatggggcna   600

        <210> 167
        <211> 354
        <212> DNA
        <213> Homo sapiens

        <400> 167

58

```
cagattttgt cacgtgggga cccagctgta catatgtgga taagctgatt aatggttttg        60
caactgtaat agtagctgta tcgttctaat gcagacattg gatttggtga ctgtctcatt       120
gtgccatgag gtaaatgtaa tgtttcaggc attctgcttg caaaaaaatc tatcatgtgc       180
ttttctagat gtctctggtt ctatagtgca aatgctttta ttagccaata ggaattttaa       240
aataacatgg aacttacaca aaaggctttt catgtgcctt acttttttaa aaaggagttt       300
attgtattca ttggaatatg tgacgtaagc aataaaggga atgttagacg tgtt             354
```

        <210> 168
        <211> 426
        <212> DNA
        <213> Homo sapiens

        <400> 168
```
acacgtntaa cattcccttt attgcttacg tcncatattc caatgaatac aataaactcc        60
tttttaaaaa agtaaggcnc atgaaaagcc ttttgngtaa gttccatgtt atttttaaaat     120
tcctatnggc taataaaagc ntttgcacta tanaaccnga nacatntana aaagcncatg       180
atngattttt ttgcaagcan aatgcctgaa acattacatt taccttatgg cacaatgaga       240
cagtnaccaa atccaatgtn tgcattanaa cgatacagct acttttacag nngcgaaacc       300
attaattagn ttatccncat atgtacagnt gggtccccac gtgacaaaat ctggngccga       360
attntttgga tccnctaatg tcgaccctgc aggcgcncga ngctccaagc ttttgntccc       420
ctttta                                                                  426
```

        <210> 169
        <211> 651
        <212> DNA
        <213> Homo sapiens

        <400> 169
```
gtctggtgcc agcagccgcg gtaattccag ctccaatagc gtatattaaa gttgctgcag        60
ttaaaaagct cgtagttgga tcttgggagc gggcgggcgg tccgccgcga ggcgagccac       120
cgcccgtccc cgcccctttgc ctctcggcgc ccctcgatg ctcttagctg agtgtcccgc       180
ggggcccgaa gcgtttactt tgaaaaaatt agagtgttca aagcaggccc gagccgcctg       240
gataccgcag ctaggaataa tggaatagga ccgcggttct attttgttgg ttttcggaac       300
tgaggccatg attaagaggg acggccgggg gcattcgtat tgcgccgcta gaggtgaaat       360
tcttggaccg gcgcaagacg gaccagagcg aaagcatttg ccaagaatgt tttcattaat       420
caagaacgaa agtcggaggt tcgaagacga tcagataccg tcgtagttcc gaccataaac       480
gatgccgacc ggcgatgcgg cggcgttatt cccatgaccc gccgggcagc ttccccgaac       540
cggtgacggt gtcgtggaac taagcccctg accagcggcg tgcacacctt nccgggtgtc       600
ctacaagtct caggactcta ttcctcanca acgtggtgac cgtgcccttc a                651
```

        <210> 170
        <211> 636
        <212> DNA
        <213> Homo sapiens

        <400> 170
```
ggaagatggc ggctgggttc aaaaccgtgg aacctntgga gtattacagg agatttctga        60
aagagaactg ccgtcctgat ggaagagaac ttggtgaatt cagaaccaca actgtcaaca       120
tcggttcaat tagtaccgca gatggttctg ctttagtgaa gttgggaaat nctacantna       180
tctgtggagt taaagcagaa tttgcagcac catcaacaga tgccctgat aaaggatacg        240
ttgttcctaa tgtggatcta ccacccctgt gttcatcgag attccggtct ggacctcctg       300
gagaagaggc ccaagtggct agccaattca ttgcagatgt cattgaaaat tcacagataa       360
ttcagaaaga ggacttatgc atttctccag gaaagcttgt ctgggttcta tactgtgatc       420
tcatttgcct cgactacgat ggaaacattt tggatgcctg cacatttnct ttgctagcgg       480
ctttaaaaaa tgtacaagtt gccttgaagt tactataaat gaagaaactg ctttagccag       540
aagttaattt aaagnaagaa aagtatttg aatattaaga actcatncag ttggcaactt       600
ccctttttgct ggggtttttgg atgacacttt tggctt                                636
```

        <210> 171
        <211> 687
        <212> DNA
        <213> Homo sapiens

```
        <400> 171
        cagaagaatg tagtttgata tttatttagt ataaaacgtt tgtgcacagt gttaacaaat      60
        acaattttta caaatctgtt ttgaaaatgt ggtggctgtt tatttgggtt tcatactctt     120
        aattacttca tccatcagtt ttttaacttc tttgtgtctt gtaactgctc ggctcataca     180
        gtcctgaagt ttagctccag ttagcccact tccacctggt ttgtgaanac aacanagttt     240
        gccttcctca tccattacta ttgttaaggt tcctgttgcc agatgttcct cctctccagt     300
        agggtcaact ataagcaaag tgtcatcaaa cacagcaaag gaagttgcaa ctggatgagt     360
        tctaatattc aaataacttt tcttctttaa attaacttct gctaaagcag tttcttcatt     420
        tatagtaact tcaggcaact gtcatttttt aaagccgcta caaagcaaat gtgcaggcat     480
        ccaaaatgtt tccatcgtag tcgaggcaaa tgagatcaca gtatagaacc caaacaagct     540
        ttcctggaaa aatgcataag tccntctttc tgaaatatct ggngaatttt caatngacat     600
        ctgcaatgga attggctagc cccttgggcc tttctccnga nggccaaccg ggaatctnat     660
        gaaacccagg gggggagat ccncatt                                          687


        <210> 172
        <211> 617
        <212> DNA
        <213> Homo sapiens


        <400> 172
        gatgaacgan nttntggcag agtcngctaa ngaactccct caagtttcat ttgtgaagcc      60
        ggaagctgaa ggtgttcctg nagtatntga aaaatatgag attagctctg tnnccacttt     120
        nntgtttttnn nagaattctn acaaaatcca ccgattgtat ggcgctgcat gcccnaaagn     180
        nnnccctaan tgacnttngn ctgtgcatct ctcggttcct tcntacccag cgctaatgaa     240
        catcttanag aagatctcaa ccttcgcttg aagaanttga ctcatgctgc cccctgcatg     300
        ctgctatnaa aggaactcct cagaaccacg ctgtggtttc ancangcaga tggnggaaat     360
        tcttcacana cataatatnc agtttancag tttttgnnnt catntcagat gaaaaggttn     420
        nacagggact taaancctat nccagctggn cnncctaanc nnanctctan gnttntggan     480
        agctnatang aggactnnct ttnnttaagg agcgngaagc atnttnnagn aacttttatt     540
        ccaattnggn nccnaaancn ncccaatttt tntngaaaag ctcaaacgtg cttnacnaat     600
        aaaagctttc cttgtgg                                                    617


        <210> 173
        <211> 733
        <212> DNA
        <213> Homo sapiens


        <400> 173
        accagttaat tttttatttt ttgtagatat gaggtttcgc catgttgctc aggctggtct      60
        caagctccgg agctcaagca acccgcctgc ctccgcctcc caaagtgctg ggatcacaag     120
        cacgagccat tgtgcccagc ctggcactta atttgtgaaa gccacaccat ttctaacagg     180
        aacataaaaa taccaggtca tttcanaagc cccagacttg ggcaactcca ctcactaact     240
        tgcagcgtgc tacctcaaag ccagtgtggc acgaggcttc aagcacagca ctggggctgc     300
        gctgacagat cctggttcaa atcccagctc ccagccctag aaccttacag tgacctaagt     360
        gcaccaagac tccctcaacg tgttctgctg cagccagtga gtcagtgcac gtgcccggcc     420
        catgagctaa ctgaactcat ggcttctgaa tctgaatgtc tctaaatatc agacaaagct     480
        gtatgaaaaa agcccccaag actctgaaac cagatgggat gccagttata aaacttgtct     540
        tttnaaggta cccatcctgg tgaatgaggc atcaggaaac ttctgcagct ttgngtctga     600
        ttcaaaaang ggggatacct tttccttanc catnacaang gggcacaagn ccgacacttc     660
        tggtaaattn caacactttt ggggangctt gaggcaagga aaaccttatt tttttttccaa     720
        gaaaataaaa aaa                                                        733


        <210> 174
        <211> 651
        <212> DNA
        <213> Homo sapiens


        <400> 174
        ggagcttccg gagaagaaga agatgaaata tattcaggac ttccagagag agaaacagga      60
        gttcgagcga aacctggccc gattcaggga ggatcacccc gacctaatcc agaatgccaa     120
        gaaatcggac atcccagaga agcccaaaac cccccagcag ctgtggtaca cccacgagaa     180
        gaaggtgtat ctcaaagtgc ggccagatga gatcatgaga gactatatcc agaagcaccc     240
        agagctgaac atcagtgagg agggtatcac caagtccacc ctcaccaagg ccgaacgcca     300
```

```
      gctcaaggac aagtttgacg ggcgacccac caagccacct ccgaacagct actcgctgta    360
      ctgcgcagag ctcatggcca acatgaagga cgtgcccagc acagaagcgc atggtgctgt    420
      gcagccagca gtggaagctg ctgtcccaga aggagaagga cgcctatnac aagaagtgtg    480
      atcagaaaaa gaaagattac gaggtggagc tgctccgttt cctcgagagc ctgcctgagg    540
    5 agggagcagc agcgggtctt gggggaagag aagatgctga acatnaacaa gaagcaggcc    600
      accagccccg cctccaagaa gccagtccan gaagggggca aagggccggc t              651
```

```
            <210> 175
            <211> 671
   10       <212> DNA
            <213> Homo sapiens
```

```
            <400> 175
      aaagaaagaa agaaagtggg ggaggccagg ggggcaaggg acagaacatg ggggagaaac     60
   15 aaaggtggtc agttggggag gggagctcct gggctctccc tggctgccct ggggtggggc    120
      tgagcctcag ttggagtcag agtctgagga gtccctgag gaggaggagc tggagctgct    180
      gccctcggac tcattatctt catcctcatc gtcatcctcg tcgtcgtctt cgtcctcgtc    240
      atcctcatcc tcttcatcat cctcctcgga ctccgacttg gactgcagag tagtccggct    300
      ggatttgggg tttgggcctc gcagcttggt catgctctta cgtttattgg agatgtactc    360
   20 tttatatgct gcacggtcct ggggagacag gctcttaacc cagaggtcca ggtgcacctt    420
      gtactgcttt tgctgctcct cggccagctt tttgtaagtg ctccttctgg ctctgggaga    480
      tgcgctgcca gcgactgccg atctccacca tgcgctcctt cagcggcagg tgggtcanct    540
      ccccattgga acagcagctc ctgggaagaa cttcntggnt aaccngttca tggggaaggc    600
      tttctttggg gttcttccct tgggaaattt catctttctt gggaaanaat ttgtanccaa    660
   25 tcttgggagg t                                                          671
```

```
            <210> 176
            <211> 902
            <212> DNA
   30       <213> Homo sapiens
```

```
            <400> 176
      caaattatca gcactttta ttaatttgat cagtgatcct tcacgttggg ttcgccaagc     60
      agcttttcag tctctgggac ctttcatatc tacttttgct aatccatcta gctcaggcca    120
   35 gtatttaaa gaagaaagca aagttcaga agagatgtca gtagaaaaca aaaataggac    180
      cagagatcaa gaagccccag aggatgtaca agtcaggcca gaggatactc cttcagatct    240
      cagtgttagt aattccagtg tcatactgga aaacacgatg gaagaccatg ctgctgaggc    300
      atccgggaag cctctaggtg aaattagtgt tccactggac agctctttac tttgtacttt    360
      gtcctcagaa tctcaccagg aagcagctag taatgagaat gataaaaaac ctggtaacta    420
   40 caaatctatg ttacgaccag aggttggcac cacttcacaa gattcagctc tcttagatca    480
      ggaattgtat aactccttcc atttctggag gactcctctt cctgaaatag atctagacat    540
      agagcttgaa cagaactctg ggggaaaacc cagcccagag ggaccagagg aagaatctga    600
      gggccctgtg cccagttctc caaacatcac catggccacc agaaaggaac tggaagaaat    660
      gatagaaaat ctagagcccc ccattgatga tccagatggt naagcacaag ttggaagtgc    720
   45 tgtccgctgc actacgtgct ttcaancctg ggatgcncat gaagagancc atcggtttta    780
      gaaaaggaga agtggtttgc caagatgaac cgggatntaa atgagcttnc ccaantgnta    840
      aataaatcaa gaanaatctg ggcctttaa tcaacggagg ctggtggaga aaattgggcc    900
      tc                                                                    902
```

```
   50       <210> 177
            <211> 700
            <212> DNA
            <213> Homo sapiens
```

```
   55       <400> 177
      aaaagacaaa tattttaatc tagtttcccc actttaaatc attaatacag gtcacaaatt     60
      gcatttattg gtagacatct agaaaacaat caaaagtgta tatatctctc tctatagatc    120
      ttattaataa attttatttg dacaagagaa cttgngccac aacagtttaa acagcatgat    180
      taaagactgc agcactccca agagtggtca caggtatgta cagtatgtga agaagttgca    240
   60 cctcagagct gatcatgatc aagttaaaaa caccagacat acattatacc gtctaataaa    300
      tttccttcag gtcatgacca gcatgaaaaa atcagacaca gacactcagc aaccattctg    360
      taaatgtgta cagcaatatg ctgcgcttaa gagtttaagt caatcctact tgngttggca    420
      tcaggnccTt tangagatgt aaaaacccct cctttcccat ttgcacacgt cacaaacgat    480
```

61

```
tcacacacag ggctgggctg gcagctggcc acagagccca ncaagtcctt cctgggagag     540
aagagttagg gctgatactg aaggnctttt tccatctggg cnacgtntgg ctttcaggct     600
gnaagaattt catttggcga ttggtaaata aaacccngag aaagccatgc nggnctctgg     660
gaatctcatc ccttccataa nggaaaatgc tctgccattt                           700
```

```
<210> 178
<211> 657
<212> DNA
<213> Homo sapiens
```

```
<400> 178
aagagctgga ggacaaggtg gccgcctgcc agaaggagca ggccgacttc ctgccccgga      60
tagaggaaac taagtgggag gtgtgccaga aggctggcga gatctccctc ctgaagcagc     120
agctgaagga ctcgcaggcg gatgtgtcgc agaagttgag tgagatcgtg ggactgcgct     180
cgcagctgcg ggagggccgg gcttcgctgc gggagaagga ggagcagctg ctcagcctgc     240
gggactcctt cagcagcaag caggccagcc tggagctggg cgaaggcgag ctgcctgccg     300
cctgcctcaa gccggcgctg accccgtgg acccggccga gccacaggat gctctggcca     360
cctgcgagag cgacgaggct aagatgcgcc gtcaggccgg ggtggccgct gccgcctcct     420
tggtttccgt ggacggggag gcggaggctg gcggggagag cgggacgcgg gccctgcggc     480
gggaggtggg gcggctgcag gccgagctgg cggctgagcg gcgggcccgg gagcgccagg     540
gtgccagctt cgccgaggag cgccgcgttt ggcttgagga aaaggagaag gtgatcgagt     600
acccagaaag cagcttgcag ctgancttac gtnggagatg taccaaccgc aacccaa       657
```

```
<210> 179
<211> 682
<212> DNA
<213> Homo sapiens
```

```
<400> 179
cttactaatg ccttctcttc tccctgcccc tgtggcctag gcccaggttc tagggcaggt      60
acagtgaggg gtgaatggaa tgggcagtgg tcgacaggat ggcctcccac ccagctcana     120
gacctggtga ggaccaccca naagggctgt gcagagggtt agaggccaca cagaggggca     180
ctcatgtttt tgtgggggat gcacagctca ttaaacagtc accagtcatg ggaggaggct     240
ggtcaggggc tagggacttt gctcacagta gttgccagct ntntccacct tgcccccaa     300
aactcantct tgggggtggg aggaagagag tgaaaaanan agagatntaa gggctgaggg     360
ccaagcctct ccaattttta ttgctggnga attaaaaatt tgcttttccc ttcctgtctt     420
ggggagatan actctgagag ggccccaaaa anaancaact gacattggct tgacctaacc     480
cctcatgcca ngcctaccct gggcangtgc tgnaccacct nanggcgccc aggaacctct     540
naagtcacct tgttctttaa gggcaaatna cattcaactt ttccccgcc cccaaaacaa     600
gggcctccgg ctcaaacttt gggccaangg anctggnaaa gtgggcaatg caccaaaagg     660
gaaaccggaa ttttttttgg aa                                             682
```

```
<210> 180
<211> 757
<212> DNA
<213> Homo sapiens
```

```
<400> 180
gtgccccagg gataccctgg aggggtcccc accttcttcc gggacatgaa gcagggcctg      60
ctgtctgtgg gcattggtgg ccgggagtcc cggaatggct gcctggacgt ggagaaggac     120
tgttccatca ccaagttcct gaaccgcatc ctggggctgg aggtgcacaa gcagaacgcc     180
ctgttccagt acttctcaga caccttcgac cacctcatcg agatggacaa gcgggagggc     240
aaatacgaca tgggcatcct ggaccttgct cccggtatcg aggagatcta cgaggagagc     300
cagcaggtgt tcctggctcc cgggcacccg caggacgggc aggtggtctt ctacaagatc     360
agcgtggacc gcgcctgcaa gtgggaggac gcctttgcca agtcgctggc gctgacgggc     420
ccctatgacg gcttctacct ctcctacaag gtcctgcggta acaagcccag ctgcctgctg     480
gcggagcaga accgcggcca gttcttcacg gtgtacaagc ccaacatcgg ccggacagagc     540
cagctggagg ccctggacag cctccgccgc aagttccacc gggtcaccgg ggaggaggcc     600
aaaggagccc tgggagagtg gctacgcttt gtcgctgacg cactgcaagc cacagcgcct     660
ggaaccggca cttccgcctt ggcgcaagaa ggtnaaggac tgnctgcagg ggcttgcggg     720
ttgcggcacc aattacatgc ttgtgcngcg ccccttt                              757
```

```
<210> 181
```

62

<211> 695
<212> DNA
<213> Homo sapiens

<400> 181
```
gtttttttag gcaaaaggca catatattta aaaaagtcct ttacatatgt acatcagaac    60
ttgctataaa tacatagaaa ccgcaggcgc caccctgcca gctccgcggc ctggggcctg   120
ggagaggtga gcgggcaata acttaggggt cagggaaggg ctgggggagg gagaattgca   180
tatattagca ggggtctgcc ccacggagcc cccgagacgc ggggccctga gcacctgggg   240
tttcctgagt ttctagctct tgggaccacc cggtttcacg gatttcaagg gtttgggccc   300
actgagccct tgtgggtgcc cagtcccaga gcagccaccc ggagcccctt cctacttggg   360
aggagaggca cagagagggc cctgccacgc cccggccccc agctgtctga ntgggccccg   420
caaggctgac caangtgggg gcccgggtcg ggcgcttaaa gcacttgcgg ccanggccta   480
aggctcctct gagcagtggt caagggacct tggcccttct ncccaccggt gnttctaggg   540
gagaaacgtc cctgtgtctt ggggcatgtt tcgctaaang cgtgtcaaaa aagaacctgg   600
gcgcccggga anggntgggc ttaactngat cacgctcttg cgnttnggga ccaacggccc   660
ngcggggncc ccccggcccc cgnggccctt cccca                              695
```

<210> 182
<211> 817
<212> DNA
<213> Homo sapiens

<400> 182
```
ttgaaggcta aggatcaagg gaagcctgaa gtgggagaat atgcgaaact ggagaagatc    60
aatgctgagc agcagctcaa aattcaggag ctccaagaga aactggagaa ggctgtaaaa   120
gccagcacgg aggccaccga gctgctgcag aatatccgcc aggcaaagga gcgagccgag   180
agggagctgg agaagctgca gaaccgagag gattcttctg aaggcatcag aaagaagctg   240
gtggaagctg aggaacgccg ccattctctg gagaacaagg taaagagact agagaccatg   300
gagcgtagag aaaacagact gaaggatgac atccagacaa aatcccaaca gatccagcag   360
atggctgata aaattctgga gctcgaagag aaacatcggg aggcccaagt ctcagcccag   420
cacctagaag tgcacctgaa acagaaagag cagcactatg aggaaaagat taaagtgttg   480
gacaatcaga taaagaaaga cctggctgac aaggagacac tggagaacat gatgcagaga   540
cacgaggagg aggcccatga gaagggcaaa attctcagcg aacagaaggc gatgatcaat   600
gctatggatt ccaagatcag atccctggaa cagangattg tggaactgtc tgaagccaat   660
aaacttgcag caaaatagca gtctttttta cccaaaggac catgaaggcc ccaagaagag   720
atgatttctg aactcaaggc aacaagaaat ttttaccttg ggagacacca ggcttgggaa   780
agttnggang cccanaaacc gaaaacctgg gaggagc                            817
```

<210> 183
<211> 686
<212> DNA
<213> Homo sapiens

<400> 183
```
acgaatataa agtttcttgt aaatatgtac agtcttttga gctagttcta tntagcagaa    60
agcagttcac agatganaca cacaatatac attttcaggg ctcaagaagc ccatttctca   120
tggagatcct aaatgaaatg ccaagactga aagacccatt ttcagngacc tttccaaata   180
ctggggacca aganacaaaa cttcagcaaa cattcaatca aatctgccct ggggacggga   240
ggggagggag tacgacccca cagactccaa gcaacacata aaacgccaca gcaggacatt   300
tgccaaagga gctaccacat ggaggtttgt aggcgtttca aacaagaaag cacttaggtt   360
aaaacacgan cnggaaggag ctgggatgca ggccaggttg caatctggaa agggatctga   420
actgnggaca cagttgaaaa cacggtcatg ttcacctgct gnggggggaaa cgggtctacc   480
tttgagccta cctaagaggt gcctgggttt gttgaggcgg gcctaaaaat cgtggangac   540
ccaaagcaac agatgccttt gnggagatt naaggcanga aataaggncc gggngttaac   600
tttgccaact gcnaagcctn ttanggtggg ttntntccan ttgccaagaa tttcntccct   660
tatanggagg gngccgcana acccaa                                        686
```

<210> 184
<211> 939
<212> DNA
<213> Homo sapiens

```
          <400> 184
          agagcgccat gagtagcgac cgcatggact gtggccgcaa agtccgggtg gagagcggct        60
          acttctctct ggagaagacc aaacaggact tgaaggctga agaacagcag ctgccccgc        120
          cgctctcccc tcccagcccc agcaccccca accacaggag gtcccaggtg attgaaaagt       180
    5     ttgaggcctt ggacattgag aaggcagagc acatggagac caatgcagtg gggccctcac       240
          aatccagcga cacacgccag ggccgcagcg agaagagggc gttccctagg aagcgggact       300
          tcaccaatga agccccccca gctcctctcc cagacgcctc ggcttccccc ctgtctccac       360
          accgaagagc caagtcactg gacaggaggt ccacggagcc ctccgtgacg cccgacctgc       420
          tgaatttcaa gaaaggctgg ctgactaagc agtatgagga cggccagtgg aagaaacact       480
   10     ggtttgtcct cgccgatcaa agcctgagat actacaggga ttcagtggct gaggaggcag       540
          ccgacttgga tggagaaatt gacttgtccg catgttacga tgtcacagag tatccagttc       600
          aanagaaact atggcttcca gatacataca aaggagggcg aagtttaccc ttgtcgccat       660
          gacattttgg gattcgggcg gaactggatc naaacatcat gaacacgtgc ccccgancac       720
          tgccccngat gtgancaann tcgtttgnca ganggaaaaa acaagaancc gctggttntt       780
   15     ttgaaacttg nccgaggcct tcttganaan caaaaaggca aaacctnggg gaacccggac       840
          ccttgaacaa aaaaaagaan cccccncng ggaaccggaa ggcnaaaang gcccccttcca       900
          anaacctttt gactnggggc tgaantccct cccattcca                            939


          <210> 185
   20     <211> 692
          <212> DNA
          <213> Homo sapiens


          <400> 185
   25     gtgcaagatt taataaaaaa caaacaaaaa taggaatggt tgctttcaac attttccagg        60
          ttgtgaaagg tttgccacga ctctcagggg tgtggttcta agctgcatca gtggaacaaa       120
          tacaaaatgc tgtcctcctc ctgggctgga aggcagtgca ctttctcctc ttaacagcca       180
          gactagcggg tgaggagtca gtgctgtgac ccaggccaag ctggagtgtc cgcatagctt       240
          tttctctgac cagtggggat tccatctacc ttgaggcgtg ctggctgggc ccgtttcca       300
   30     caccagcaca tggtgagaca gggtagctta tcaacaggct gctgggcctt aatactgaca       360
          gtgagtgtgg cgggtcacag ccaggaaagg actaacacag atgccctccc accccccactg       420
          ntggcctaat tttagaatac cacggaaaaa agctttgatg aagacaacag gaagtcaaca       480
          cagcagagag tggtgtggac aacccanaag ccagcctnac gcattncatg cccacagtta       540
          acgatgacca caaccgcaat nataataata ataataaaac aaaggtccag gtgaaaaaca       600
   35     ncgcttgggg tgtgctgctg caaanctggg gaaagcgcgt gctcaacttt ggatgggaca       660
          cacctagtct ttcttcaagt ccctggatta aa                                   692


          <210> 186
          <211> 447
   40     <212> DNA
          <213> Homo sapiens


          <400> 186
          gagagagaga gacagacaga cagacagaga gagagagacc gacagagaga cacagaaaaa        60
   45     gaaagagaga ggcagacaga cagagaaaga gacagacaga gaaagacata gacagacaga       120
          gagagacaga agacagacac agtgagacag gcagagaggg agagagagag acaaagacag       180
          agacagagac agagagaaag aaagagacag acagacagag aaagagacac agagagaaag       240
          acagagacga acagagagaa acagacagag agaaggccct agcccagtag caatacagtg       300
          cctttctttt catttttctct ttcttttctt ttcttttttt ctttcttgta tatctgtatg       360
   50     catggatgga tgtatgtatg tatgtatgta tgtatgtatg tatgtatgtg tgtatttatt       420
          tatgtacgta tttatctgga gaccggg                                         447


          <210> 187
          <211> 675
   55     <212> DNA
          <213> Homo sapiens


          <400> 187
          actgtaggca ctgccatggc ccctgtgctc agtaaggact cggcggacat cgagagtatc        60
   60     ctggctttaa atcctcgaac acaaactcat gcaactctgt gttccacttc ggccaagaaa       120
          ttagacaaga aacattggaa aagaaatcct gataagaact gctttaattg tgagaagctg       180
          gagaataatt ttgatgacat caagcacacg actcttggtg agcgaggagc tctccgagaa       240
          gcaatgagat gcctgaaatg tgcagatgcc ccgtgtcaga agagctgtcc aactaatctt       300
```

```
            gatattaaat cattcatcac aagtattgca aacaagaact attatggagc tgctaagatg      360
            atattttctg acaacccact tggtctgact tgtggaatgg tatgtccaac ctctgatctt      420
            tgtgtaggtg gatgcaattt atatgccact gaagagggac ccattaatat tggtggattg      480
      5     cagcaatttg ctactgaggt atgtatgata tacaccgtga catcccccca ctaccatcac      540
            catgcacaaa tatcttaaaa taactttaat ccttggtgct ctgttgatac ccacattttt      600
            agtgtgacac acagctcaag tatgttttgt ncaacaaact ttttttattt cancagctta      660
            acctacaaaa aggga                                                       675


     10         <210> 188
                <211> 616
                <212> DNA
                <213> Homo sapiens


     15         <400> 188
            tggcagtgga gggacggcgg gtccaggccc tggaggaggt gctgggagac ctaagggctg       60
            agtctcggga gcaggagaaa gctctgttgg ccctccagca gcagtgtgct gagcaggcac      120
            aggagcatga ggtggagacc agggccctgc aggacagctg gctgcaggcc caggcagtgc      180
            tcaaggaacg ggaccaggag ctggaagctc tgcgggcaga aagtcagtcc tcccggcatc      240
     20     aggaggaggc tgcccgggcc cgggctgagg ctctgcagga ggcccttggc aaggctcatg      300
            ctgccctgca ggggaaagag cagcatctcc tcgagcaggc agaattgagc cgcagtctgg      360
            aggccagcac tgcaaccctg caagcctccc tggatgcctg ccaggcacac agtcggcagc      420
            tggaggaggc tctgaggata caagaaggtg agatccagga ccaggatctc cgataccagg      480
            aggatgtgca gcagctgcag caggcacttg cccagaggga tgaagagctg agacatcaan      540
            caggaacggg agcaagctgc tggaaaaagt cttttggccc aaaagggtnc aagaagaata      600
     25     tgatccaaga agaaac                                                      616


                <210> 189
                <211> 667
                <212> DNA
     30         <213> Homo sapiens


                <400> 189
            gaatgcaaag atctcagggt ttattgttga aggagaagat gaaggaggtg gtgaagtgct       60
            aggaaaataa attctagatg agaggcagta catgtccctc agccagggca aggcacccct      120
     35     ctgggtgatt ccatagggag caagcaaatg caatttgcct cattcccagg tgagttgggg      180
            tcctccccag ggttgcagat ttacttcctc ttcctgggaa cacccgccga cctggggctc      240
            ctgggtgcct aacagagcca ggcttttcct ttggcaaacc tgtaggtgtg cggagggggcc      300
            atgacccatg acacagtctt ctgtctgtgt gctcctggct gtggctgcta cctggaggcg      360
            gcttgggtag tgctgggggct ggggtgtagc aggactggcc ctggggatgt cagactttga      420
     40     gtcagggact catccagcct gcgggtctct gcctccagga cagtggcctc aggggcctgg      480
            gccacggcaa gaagtgagtg tgagaggctg tggtgcaagc ctgctagctc acggctggtc      540
            tgtgctgagc gggtgatgta atcctgcttc tgcttccgct ccaaagtcag ctgagctttg      600
            caacaggacc acctnttttt ttgcagtttc agccccacac ttggccatct ggagttcttt      660
            ttgtcct                                                               667
     45
                <210> 190
                <211> 771
                <212> DNA
                <213> Homo sapiens
     50
                <400> 190
            actttgagaa ggatgcagac tcatctgagc gtatcattgc tcccatgcgc tggggcttgg       60
            tcccttcttg gttcaaagaa agtgatcctt ccaagctgca gttcaatact accaactgtc      120
            gtagtgatac cgtaatggag aaacggtcat ttaaggtgcc tctgggaaag ggaagacgct      180
     55     gtgtcgtttt agcagatgga ttctatgagt ggcagcgatg tcaggaaca aaccagaggc      240
            agccatactt catctatttt cctcaaatca agacagagaa gtcaggtagc attggtgctg      300
            cagatagtcc tgagaactct gggacaactg gaggctgct acaatggccg      360
            ggatctttga ctgctgggag cccccagagg gaggagatgt cctgtattcc tataccatca      420
            tcacagtgga ttcctgcaaa ggcttgagtg acatcccacca caggatgcct gccatattag      480
     60     atggagagga ggcagtttct aaatggcttg actttggtga agtctcaact cangaagctc      540
            tgaaattaat ccacccaaca gagaacatca ccttccatgc agtctcttct gtggngaaca      600
            actcgcgaaa caacacttct gagtgtctgg ctnctgtcga cttggtggtc aaaaangagc      660
            tcaaggcaag tggcaatanc ccaaaagatg ttgcaatggg ttggncccaa agtcnccca      ·720
```

```
           aaaaggaaga ctcaaaaacc cttcaaaagg aaaaagtcag atgttnccca a              771


                <210> 191
                <211> 478
                <212> DNA
                <213> Homo sapiens


                <400> 191
           accaaataca atttattcag gaaaaaaata aattttaaga acttattttt attttatttt      60
           agaacttaaa aataaatttt taagaactaa aaaagtgaaa gagcccagtg gctgagcaga     120
           aaacagctta ctacaaggag taccagatca gggcagagac ttcccagctg ggtaaggcat     180
           gctttgaggg aagactccac cagccctgcc aggaaagggc agcaggcgca gtgcccctat     240
           ggggcccaca tggctggtaa cagcagcagg acacctcttc caaagctgtc caccagcccc     300
           actaggggct cctactcatg gcaaaaaaga ctacatgagc ccacaactgt caactaacac     360
           agtgccacct cctcccaaag caaacacata tacatacaat gttaagaacc tattatcaga     420
           acagcagtgc agcagaccct ggccttggtc tctgaaagtc ctgtgtcact ggctgtaa       478


                <210> 192
                <211> 961
                <212> DNA
                <213> Homo sapiens


                <400> 192
           ctcaatccaa cagcccagtg cttctgtctc gactgcactt tgagaaggat gcagactcat      60
           ctgagcgtat cattgctccc atgcgctggg gcttggtccc ttcttggttc aaagaaagtg     120
           atccttccaa gctgcagttc aatactacca actgtcgtag tgataccgta atggagaaac     180
           ggtcatttaa ggtgcctctg ggaaagggaa gacgctgtgt cgttttagca gatggattct     240
           atgagtggca gcgatgtcag ggaacaaacc agaggcagcc atacttcatc tattttcctc     300
           aaatcaagac agagaagtca ggtagcattg gtgctgcaga tagtcctgag aactgggaga     360
           aagtctggga caactggagg ctgctgacaa tggccgggat ctttgactgc tgggagcccc     420
           cagagggagg agatgtcctg tattcctata ccatcatcac agtggattcc tgcaaaggct     480
           tgagtgacat ccaccacagg atgcctgcca tattagatgg agaggaggca agtttctaaa     540
           tggcttgact ttggtgaagt ctcaactcag gaagctctga aattaatcca cccacagaga     600
           acatcacctt ccatgcagtc tcttctgtgg tgaacaactc gcgaaacaac acttcctgag     660
           tgtctggctc ctgtcgactt gggnggtcna aaaaagagct tcagggcaag tggcagtaac     720
           ccaaaagant tttgccantg ggttgggccc caaaagttca ccccaaaaan ggaaganctc     780
           aaaaaacacc ctcaaaaagg gaaaanatcc agattgttnc cccagngggt ccnagtcngt     840
           tnctggcaan aaanaaatnc cccttccccn cccaanaaaa aggcncctgn caggacttcc     900
           ntaaaaccaa tgggcttnaa accgggaaaa aaggaaggag ggaacctttg gggccaancg     960
           t                                                                   961


                <210> 193
                <211> 884
                <212> DNA
                <213> Homo sapiens


                <400> 193
           gaagaatgtg tgggcgaaca tcctgtcact tacctagaga tgttctcacg agagcttgcg      60
           cctaccagga tcggcggggc cagcagcggc tcccggagtg gagggaccct gataagtact     120
           gcccctctta caacaagagt cctcaatcca acagcccagt gcttctgtct cgactgcact     180
           ttgagaagga tgcagactca tctgagcgta tcattgctcc catgcgctgg ggcttggtcc     240
           cttcttggtt caaagaaagt gatccttcca agctgcagtt caatactacc aactgtcgta     300
           gtgataccgt aatggagaaa cggtcattta aggtgcctct gggaaaggga agacgctgtg     360
           tcgttttagc agatggattc tatgagtggc agcgatgtca gggaacaaac cagaggcagc     420
           catacttcat ctattttcct caaatcaaga cagagaagtc aggtagcatt ggtgctgcag     480
           atagtcctga gaactgggag aaagtctggg acaactggag gctgctgaca atggccggga     540
           tctttgactg ctgggagccc ccagagggag gagatgtcct gtattcctat accatcatca     600
           cagtggattc ctgcaaaggc ttgagtgaca tccaccacan gatgcctgcc catattanaa     660
           tggagaagga ggcagtttct aaaatggctt ggactttggt gaaagtcttc aacttaagga     720
           agcttttgaa atttaatccc cccaacaaga gaaaatttac ctttccatgc cagctntttn     780
           tggggggaac aaacttgcgg aaacaacact ttcctgaatg gtttgggttc ctgtccacct     840
           tgggggggcn aaaaangaac ctcanggcaa agtgggaata nccc                     884
```

66

<210> 194
<211> 622
<212> DNA
<213> Homo sapiens

5

<400> 194

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aagaacttat ttttatttta ttttagaact taaaaataaa ttttttaagaa ctaaaaaagt      60
gaaagagccc agtggctgag cagaaaacag cttactacaa ggagtaccag atcagggcag     120
agacttccca gctgggtaag gcatgctttg agggaagact ccaccagccc tgccaggaaa     180
gggcagcagg cgcagtgccc ctatggggcc cacatggctg gtaacagcag caggacacct     240
cttccaaagc tgtccaccag ccccactagg ggctcctact catggcaaaa aagactacat     300
gagcccacaa ctgtcaacta acacagngcc acctcctccc aaagcaaaca catatacata     360
caatgttaag aacctattat cagaacagca gtgcagcaga ccctggcctt ggtctctgaa     420
agtcctgtgt cactggctgt aaggacgctt gggcacaggt tccttctcct tctcccgntt     480
nagccattgn tctaggagtc ctgcagtgcc tctcttggng gggaggggac tcttctgcag     540
gaactgactg gaccactggg gaacatctga ctcttccttt ngaggngntt ttgagtcttc     600
ctttttnggg ggacttttgg gg                                             622
```

<210> 195
20   <211> 830
<212> DNA
<213> Homo sapiens

<400> 195

25
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gcagtttcag tatcctgtat cacgtatttg aggggaatat tcccagaatg cgcttatgga      60
acaagatatc tagatgatct ttgtgtcaaa atactgagag aagataaaaa ttgcccagga     120
tctacacagt tagtgaaatg gatgctagga tgttatgatg ctttacagaa aaaatatcta     180
aggatggttg ttctagctgt atacacaaac ccagaagatc ctcagacaat ttcagaatgt     240
taccaattca aattcaaata caccaataat ggaccactca tggacttcat aagtaaaaac     300
caaagcaacg aatctagcat gttgtctact gacaccaaga aagcaagcat tctcctcatt     360
cgcaagattt atatcctaat gcaaaatctg gggcctttac ctaatgatgt ttgtttgacc     420
atgaaacttt tttactatga tgaagttaca cccccagatt accagcctcc cggttttaag     480
gatggtgatt gtgaaggagt tatatttgaa ggggaaccta tgtatttaaa tgtgggagaa     540
gtctcaacac cttttcacat cttcaaagta aaagtgacca ctgagagaga acgaatggaa     600
aatattgact caactntnct atcaccaaaa caaataaaaa caccatttca aaaaatcctg     660
agggacaaag atgttnaana tgaacaggac ntttatataa gtggatgatt ttggacattg     720
aaaactnaaa tggaagaaca nggaaaaaaa ccctgcntnt tntgacttga aaaaccaagt     780
ttagtttgng gaggaagatg aaattatgag ggctaaagaa agtccanaac                830
```

40   <210> 196
<211> 747
<212> DNA
<213> Homo sapiens

45   <400> 196

```
actgaacaat attttattta tgctgcaaaa aatgccatac tttaaaaatc agtctttttg       60
tcctgtaaaa aaaagcatag taaaggtaaa gcaccaattc ttaaattgta cattatatat     120
taaaatgtta atacattatg tcaaaatatt gaagaacatt gttttaataa cagcacaatg     180
acaaaagagc cagttaaatg gtataatttt aacataagta aaaagtgaat ccataccaaa     240
ttttaatacc aaagtaaaca ttactgttta gaaaatggc attagagggc cttaacagtt     300
agtatatatt taaaggaaat attaagtagg taatgaacaa aatcaatttt gaaattttac     360
ttattaccga atcaattatg acatttgtct tttgctttta ttcaaaagtt ctattggatt     420
tatctcaaga ttaaggacca caatatgaca gtcagccaaa aacttagttt tagtgtacaa     480
actgctttaa actacatca catcttcaga gttagggaaa tataatatag ggccttcagt     540
ttaaatggng agaagaactc tgcagcctgc agaacaaaaa taattttata tatgtncttt     600
gggtcactaa actttctcct ttttggcact gactcttgac tagaaaaatc aaagggatgg     660
nggactattc tnccaaaatc atgttgactt ntcttccgat ttcttttgga agatttactg     720
ggtggattnc atttgncatt tattctg                                        747
```

60   <210> 197
<211> 539
<212> DNA
<213> Homo sapiens

<400> 197
```
ctctgcttag tatatgttta catgcctaat ggttcattgc tagacagact ctcttgcttg      60
gatggtactc caccactttc ttggcacatg agatgcaaga ttgctcaggg tgcagctaat     120
ggcatcaatt ttctacatga aaatcatcat attcatagag atattaaaag tgcaaatatc     180
ttactggatg aagcttttac tgctaaaata tctgactttg gccttgcacg ggcttctgag     240
aagtttgccc agacagtcat gactagcaga attgtgggaa caacagctta tatggcacca     300
gaagctttgc gtggagaaat aacacccaaa tctgatattt acagctttgg tgtggtttta     360
ctagaaataa taactggact tccagctgtg gatgaacacc gggaacctca gttattgcta     420
gatattaaaa gaagaaattg nagatgaaga aaagacaatt gaagattata ttgataaaaa     480
gatgaatgat gctgattcca cttcagttga anctatgtac ctctgttgnt agtcaatgt      539
```

<210> 198
<211> 630
<212> DNA
<213> Homo sapiens

<400> 198
```
aatgtgaccc atttatttat ttatttattt atgatggagt ctcactctgt cacccaggct      60
ggagtgcagt ggcacgatct cagctcactg caacctctac ctccctggtt ccagctagtc     120
tcctgcctca gcctcccaag tagctgggac tacaggtgtc caccaccacg ctcgtctaat     180
ttttgtattt ttagtaaaga cggggtttca ccatgttggc caggccggtc ttgaactctt     240
gacctcaggt gatctgcctg cctcggcctc ccaaagtgct gggatttaca ggtatgagcc     300
accacatcca gccaatgtga cccattatct cacagttcta tatattagaa gtccagcaca     360
gaacagatag attctcatac tgaggatcat gcaaagctga aatccaggtg tcagcccagg     420
ctgtggttat catctgaagc ttggagtact cttctaagct gactcanatt tttggcagaa     480
ttcagttcct tgnggttgca actgaaggtc ccaatttttt tttcctgctt gctgacaact     540
ggaaggnagg tctcatctnc taaaggcccc tttanggntt tagccaaatg tgggnccttt     600
tnacatactt ttttnaaggc ttaacaaagg                                      630
```

<210> 199
<211> 846
<212> DNA
<213> Homo sapiens

<400> 199
```
gaaagaacaa cgaaagaaa atgaacctga agcagaaaaa actcatttat ttgcaaaaca      60
ggagaaagcc ttctatccta aatcatttaa aagtaaaaaa caaaagccat ctagggtctt     120
atattcaagt actgaaagtt ctgatgaaga agctcttcag aataaaaaga tttctacttc     180
atgttccgtc atccctgaaa catcaaattc tgatatgcaa accaaaaagg aatatgtagt     240
ttcaggtgaa cacaaacaga aaggcaaagt taaaagaaaa ttgaaaaatc agaataaaaa     300
taaagagaac caagagctaa agcaagaaaa ggaaggaaaa gaaaatacaa gaataacaaa     360
cttgacagta aatactggac tagattgttc agaaaagacc agagaggagg ggaactttag     420
gaaatctttt agcccaaaag atgatacttc attacattta tttcatattt ccactggtaa     480
atctcccaaa cattcttgtg gattaaagtg aaaaacagtc aacaccacta aaacaagaac     540
atactaaaac atgtttatca ccaggaagtt ctgaaatgtc attacagcct gatcttgttc     600
ggtatgataa tacagaatct gaattcttgc ccagaaagtt caagtgtaaa atctttgtaa     660
gccttaaggg aaaaaagcaa acatcagaaa gatttcccct ttagaatttg ggngaaaaat     720
caaaatgcca aaaattaaag ggatgaagga tcattagtcc cacatttgga aaaattcana     780
attggcacac ttgaaaaaaa tgggataaag gaanggtaaa accttttaaa aaaacataaa     840
tttgga                                                               846
```

<210> 200
<211> 505
<212> DNA
<213> Homo sapiens

<400> 200
```
atgcttttct ttttccctct ntttatgctt caatttatgt ttttttaatg ntttaccttn      60
tttatccatt tttttcagng ggcaatctga attttcaaat gntggactat gatcttcatc     120
ctttattttg gcatttgatt tttcaccaaa ttctaagngg aaatctttct gatgttngct     180
ttttttcctta tgcttacaan attttacnct tgaactttnt ggcaanaatt caaattctgt     240
nttatcatnc cnaacaanat caggctgtaa tgacatttca aaacttcctg gggataaaca     300
```

```
tgttttanta tgttcttgnt ttaggggggn tgactgnttt tcacttaatc cncaanaatg      360
tttggganat ttaccngngg aaatatgaaa taaatgtaat gaagtntcat nttttgggct      420
aaaanatttc ctaaagttcc cctcctctct ggtcttttct gaacaatcta nnccagtatt      480
tactggcaag gttggnattc ttgga                                            505
```

```
        <210> 201
        <211> 580
        <212> DNA
        <213> Homo sapiens


        <400> 201
attcgggaca aagcaaggaa agagaagaat gagcttgtcc gtcagctggt agctttcatt       60
cgtaaaagag ataaaagagt gcaggcgcat cgaaaacttg tggaagaaca gaatgcatga      120
gaaggcgagg aaagccgaag agatgaggcg gcagcagaag ctaaagcagg ccaaactggt      180
ggagcagtac agagaacaga gctggatgac tatggccaat ttggagaaag agctccagga      240
gatggaggca cggtacgaga aggagtttgg agatggatcg gatgaaaatg aaatggaaga      300
acatgaactc aaagatgagg aggatggtaa agacagtgat gaggccgagg acgctgagct      360
ctatgatgac ctttactgcc cagcatgtga caaatcgttc aagacagaaa angccatgaa      420
gaatcacgag aagtcaaaga agcatcggga aatggtggcc ttgctaaaac aacagctgga      480
ggaggaagaa naaaattttt cangacctca aattgatgaa aatccattag atgacaattc      540
tgaggaagaa atggaagatg caccaaaaca aaagctttct                            580
```

```
        <210> 202
        <211> 579
        <212> DNA
        <213> Homo sapiens


        <400> 202
agaaagcttt tgttttggtg catcttccat ttcttcctca gaattgtcat ctaatggatt       60
ttcatcaatt tgaggtcttg aaaaattttc ttcttcctcc tccagctgtt gttttagcaa      120
ggccaccatt tcccgatgct tctttgactt ctcgtgattc ttcatggcct tttctgtctt      180
gaacgatttg tcacatgctg ggcagtaaag gtcatcatag agctcagcgt cctcggcctc      240
atcactgtct ttaccatcct cctcatcttt gagttcatgt tcttccattt cattttcatc      300
cgatccatct ccaaactcct tctcgtaccg tgcctccatc tcctggagct ctttctccaa      360
attggccata gtcatccagc tctgttctct gtactgctcc accagtttgg cctgctttag      420
cttctgctgc cgcctcatct cttcggcttt cctcgccttc tctgcattct gttcttccac      480
aagttttcga tgcgcctgca ctcttttatc tcttttacga atgaaagcta ccagctgacg      540
gacaagctca ttcttctctt ccttgctttt gncccgaat                            579
```

```
        <210> 203
        <211> 808
        <212> DNA
        <213> Homo sapiens


        <400> 203
ctgcagtgca agccagcagt ggtagtccca aagccagaac cactgaggga ccagtggact       60
ccatgccatg cctggaccgg atgccacttc tggccaaggg caagcaggca acaggggaag      120
agaaagcagc aacagctcca ggtgcaggtg ccaaggccag tggggagggc atggcaggtg      180
atgcagcagg agagacagag ggcagcatgg agaggatggg agagccttcc caggacccaa      240
agcagggcac atcaggtggt gtggacacaa gctctgagca aatcgccacc ctcactggct      300
tcccagactt cagggagcac atcgccaaga tcttcgagaa gcctgtgctc ggagccctgg      360
ccacacctgg agaaaaggca ggagctggga ggagtgcagt gggtaaagac ctcaccaggc      420
cattgggccc agagaagctt ctagatgggc ctccaggagt ggatgtcacc cttctccctg      480
cacctcctgc tcgactccag gtggagaaga agcaacagtt ggctggagag gctgagattt      540
cccatctggc tctgcaagat ccagcttcag acaagcttct gggtccagca gggctgacct      600
gggagcggaa cttgccaggt gccggtgtgg ggaaggagat ggcaggttgt cccacccaca      660
ctgagggaag acnaanaggc cagaagggcc tggggcagcc tggccaggcc tggaaagcca      720
ggcttactta cagcttggag aagaacangc aggaattact ttaaggtctt tcttttacca      780
gcagctactt aaggagcttc cttgtgga                                          808
```

```
        <210> 204
        <211> 696
        <212> DNA
```

```
        <213> Homo sapiens

        <400> 204
        ctaatttata aattttaatt ttacaattta aagngattaa aacaacaagt catgaaatat      60
  5     ttattgtact actatacatc tggccctgcc ttctccaaga aggngctaac atgtttaagg     120
        actctgaaaa agaaggcact gatatggtca tttttggggt ggggaagact tttccaagct     180
        agacagatat ttctcctgcc ccttaactgg gaatataaaa aatacataac agcaaaggct     240
        gcaggaaatt gtatcctaag tcagtagcaa aaaagggtgt ccaatgcaga ttaaacttgc     300
        atctgtttgg ccagcacatg cccacatcca cattggctca gagctatggg agtcactact     360
  10    gccaggcggc agaggcagct gggtgtcant ggaagtgttc aaactcgaaa aacaggtgat     420
        cgtgcattct ttctgaatgt gcaaaatatg aatcagatca tttataaaat gcctgcagct     480
        gtttggtagg gtcacaggtc taatttaaag nctgattccc cctactcata cacacaagtg     540
        ttgtatgcat gtatatgtgt gcacacacag caccngaaca gccaaaggct ngggaggcgg     600
        aaagcttgtt cctgtgtgtc tgtgtacgtg cacaanatcc ccttttccca aaaggatgaa     660
  15    accttggana gcagcttntg cataacacta gggggg                                696

        <210> 205
        <211> 494
        <212> DNA
  20    <213> Homo sapiens

        <400> 205
        gcctggcctg cccttgcgcc cggctcccca gtgcccgccg cccgcccgcc gcgctcccgc      60
        gctccgttcc gcccaggccg cagcccagct ggaatgcaaa natcgccgnc cggctacggc     120
  25    gcacaggacg acccgcccgc ccgccgcgac tgtgcatggg ccccgggaca cggggccgcc     180
        gctgacacgc gcggcctcac cgccggcccc gccgccctcg ccgcgcccgc cnngcccgcc     240
        tngncgccca gcccgcagcg cantcccccg cgcaaccncg agccggggcg ctatggcctc     300
        agcccggccg gccgcgggga acgccangcg gnatacgagt cnngcatccc gctggcccat     360
        gaacgccttn atggggtggg caaanggacg ancagcaagc tgnctggctn ananntaacc     420
  30    cggacntgcn anaacgcggt ggntcaacna agatgctggg gnaaaagcgt gtgaaggagc     480
        tngaacgcng cgga                                                        494

        <210> 206
        <211> 1315
  35    <212> DNA
        <213> Homo sapiens

        <400> 206
        ggctgggtag gcgacccgga cggagggccg gcgaggtgcg gggtctggtg atgcgagctg      60
  40    cgcctctcgg caagatttcg cgctgcccat cccgggccct ttcatcagta atcggtagtg     120
        gatcactctg ccaagcggca ggaagaatta aggaaacgac aaggagacgc tcggctctct     180
        cccgcttggc tccttgcggc ctcctcttcc cttcgctccg gcccggtgaa actgaactta     240
        taatcgtcac tggattgtaa gtacccgagg cgaagagagc tcgctgagcc ctgatttttt     300
        gagtgtcttt gttccgggag agtttgtgag ttgaaagtat ctctgctggg ctttctgggc     360
  45    cgaaaaccgt tccggggggag ccgccatttg ctttcctgtt ccctagctag ctagctagct     420
        ctctccgcgt tgtccggcag cggcacctag aggttgggac ttggcattgc atctgattta     480
        atgaacttaa gtctgtgaat aagcctttgt gttaacgact ggtattcggt cacagcatat     540
        ttagagaaaa gacttggagc ttaaataaaa actaaggcaa aatagacgct tagctgctga     600
        tctacagaga acttcttgta attaaaagat ttcaattcat agcaaactgg tgttttaaac     660
  50    tattgcagta gctggaactt tttagtgtaa ccagcattta ttggagaagt gaatcacaag     720
        gaaataaaga tgagtaaaag caaagatgat gctcctcacg aactggagag ccagtttatc     780
        ttacgtctgc ctccagaata tgcctctact gtgagaaggg cagtacagtc tggtcatgtc     840
        aacctcaagg acagactgac aattgagtta catcctgatg ggcgtcatgg aatcgtcaga     900
        gtggaccgtg ttccattggc ctcaaaatta gtagacctgc cctgtgttat ggaaagcttg     960
  55    aaaaccattg ataaaaaaac tttttacaag acagctgata tctgtcagat gcttgtatcc    1020
        acagttgatg gtgatctcta tcctcctgtg gaggagccag ttgctagcac tgatcctaaa    1080
        gcaagcaaga aaaaggataa ggacaaagag aaaaagttta tctggaacca cggaattact    1140
        ctgcctctaa agaatgtcag gaagaaaaag gttccggaag acagccaaag aagaaatata    1200
        ttgaatctcc agatgttgaa aaagaagtga aacgatgctg agtacagatg ctgaaactgt    1260
  60    aatactcggg gggaaaaaat tgcggaagat gaaacaagga ggccgaaaat caagg          1315

        <210> 207
        <211> 623
```

<212> DNA
<213> Homo sapiens

<400> 207

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agctagctag ctctctccgc gttgtccggc agcggcacct agaggttggg acttggcatt        60
gcatctgatt taatgaactt aagtctgtga ataagccttt gtgttaacga ctggtattcg       120
gtcacagcat atttagagaa aagacttgga gcttaaataa aaactaaggc aaaatagacg       180
cttagctgct gatctacaga gaacttcttg taattaaaag atttcaattc atagcaaact       240
ggtgttttaa actattgcag tagctggaac tttttagtgt aaccagcatt tattggagaa       300
gtgaatcaca aggaaataaa gatgagtaaa agcaaagatg atgctcctca cgaactggag       360
agccagttta tcttacgtct gcctccagaa tatgcctcta ctgtgagaag ggcagtacag       420
tctggtcatg tcaacctcaa ggacagactg acaattgagt tacatcctga tgggcgtcat       480
ggaatcgtca gagtggaccg tgttccattg gcctcaaaat tagtagacct gccctgtgtt       540
atggaaagct tgaaaaccat tgataaaaaa actttttaca agacagctga tatctgtcag       600
atgcttgtat ccacagttga tgg                                              623
```

<210> 208
<211> 979
<212> DNA
<213> Homo sapiens

<400> 208

```
gaaaaacaga tgcttttatt tattgnattg gaaacaactt aataatttgc atctctacat        60
atanaaagct gctttgaata actgggaaaa caactattgc atgggaaaac atatgcaaac       120
tagcatcatt gtctctagac taggttcttc ttattgatct cacgtcatca caaagcagca       180
acagcagctt ntanaaaatg gagaaacagt aaagtcctgc aatgaagcta taattaaggn       240
tgaaccatac attccgctaa tcctgcaact ttcctacaat cattttctg cctatacaat       300
cctgcttctt ataggatgaa cacctagcaa aacaatataa atttgctgaa aaacaaaatt       360
acaaacaaat gaaagaactt aacagaacac acagcattaa aaggactagg aagagcaagg       420
tcttaatacc cagtacaata aagccaagaa ttttctaatg ctgaccagtc tgaagactga       480
aattaaatat cagttctttt tacttctcta ggagtgattc tagctcctct tgcaaagagc       540
tgagttgctc cttttctcgg cttccttttg tttgagctca tccagtcagc ctgaaatctg       600
tcttgagagc cagatttttcc actttcatga tgagacctct tgncgttttg ccctgtcctg       660
ggctcttgga gcttgccttt catgttggca atctgnttnt gaattccata accagctgga       720
tgggtccttc anttttcctgg ggctggtcat ctgaattnat taacttgggc ctggactgnc       780
tntccaaaac ttcctcgggg naagaaggtn atatcttctt atctgggagg cnggggctat       840
tttatcccac tggtggnggn gnggggatgga aatctnccca acncatatgt tntaagaata       900
tggcctgccg ggacaaaatt cttggnaaaa aatcnggcct gatttngccc tttgttattt       960
cccatnttnc cccggncta                                                    979
```

<210> 209
<211> 780
<212> DNA
<213> Homo sapiens

<400> 209

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ggagggccgg cgaggtgcgg ggtctggtga tgcgagctgc gcctctcggc aagatttcgc        60
gctgcccatc ccgggccctt tcatcagtaa tcggtagtgg atcactctgc caagcggcag       120
gaagaattaa ggaaacgaca aggagacgct cggctctctc ccgcttggct ccttgcggcc       180
tcctcttccc ttcgctccgg cccggtgaaa ctgaacttat aatcgtcact ggattgtaag       240
tacccgaggc gaagagagct cgctgagccc tgattttttg agtgtctttg ttccgggaga       300
gtttgtgagt tgaaagtatc tctgctgggc ttttctgggcc gaaaaccgtt ccgggggagc       360
cgccatttgc tttcctgttc cctagctagc tagctagctc tctccgcgtt gtccggcagc       420
ggcacctaga ggttggggact tggcattgca tctgatttaa tgaacttaag tctgtaata       480
agcctttgtg ttaacgactg gtattcggtc acagcatatt tagagaaaa gacttggagc       540
ttaaataaaa actaaggcaa aatagacgct taactgctga tctacaaaga aacttcttgta       600
attaaaagat ttcaattcat aagcaaactg tgtttaaa ctattgcagt aanctggaac       660
tttttagtgg taaccagcat ttanttggag aagtgaaatc acaagggaaa tnaagatgaa       720
gttaaaagcc aaagatgatg cttccttacc naactgggaa agccagttta attttacgtt       780
```

<210> 210
<211> 859
<212> DNA

71

<213> Homo sapiens

<400> 210
```
aaagtgaaaa  acagatgctt  ttatttattg  tattggaaac  aacttaataa  tttgcatctc    60
tacatataga  aagctgcttt  gaataactgg  gaaacaact  attgcatggg  aaaacatatg   120
caaactagca  tcattgtctc  tagactaggt  tcttcttatt  gatctcacgt  catcacaaag   180
cagcaacagc  agcttctaga  aaatggagaa  acagtaaagt  cctgcaatga  agctataatt   240
aaggttgaac  catacattcc  gctaatcctg  caactttcct  acaatcattt  ttctgcctat   300
acaatcctgc  ttcttatagg  atgaacacct  agcaaaacaa  tacaaatttg  ctgaaaaaca   360
aaattacaaa  caaatgaaag  aacttaacag  aacacacagc  attaaaagga  ctaggaagag   420
caaggtctta  atacccagta  caataaagcc  aagaattttc  taatgctgac  cagtctgaag   480
actgaaatta  aatatcagtt  cttttactt  ctctaggagt  gattctagct  cctcttgcaa   540
agagctgagt  tgctcctttt  ctcggncttc  cttttggttg  agctcatcca  gtacagcctg   600
aaatctgttc  ttgagagcca  gattccact  ttcatgatga  gacctcttgn  cggtttgccc   660
tgtcctgggc  tcttgggagc  ttggctttat  ggtggcaatc  tgcttntgaa  atnccataac   720
cngctggatn  gggtccttca  ntttcctggg  gctggtcatc  tggatcaatt  aacttggnct   780
ggaactgnct  tttccaaacn  ttcttcgggn  caaagaaggt  tatatcttct  tnatcttgga   840
ggcngggggct aatttaatc                                                   859
```

<210> 211
<211> 771
<212> DNA
<213> Homo sapiens

<400> 211
```
gaaaagactt  ggagcttaaa  taaaaactaa  ggcaaaatag  acgcttagct  gctgatctac    60
agagaacttc  ttgtaattaa  aagatttcaa  ttcatagcaa  actggtgttt  taaactattg   120
cagtagctgg  aactttttag  tgtaaccagc  atttattgga  gaagtgaatc  acaaggaaat   180
aaagatgagt  aaaagcaaag  atgatgctcc  tcacgaactg  gagagccagt  ttatcttacg   240
tctgcctcca  gaatatgcct  ctactgtgag  aagggcagta  cagtctggtc  atgtcaacct   300
caaggacaga  ctgacaattg  agttacatcc  tgatgggcgt  catggaatcg  tcagagtgga   360
ccgtgttcca  ttggcctcaa  aattagtaga  cctgccctgt  gttatggaaa  gcttgaaaac   420
cattgataaa  aaaacttttt  acaagacagc  tgatatctgt  cagatgcttg  tatccacagt   480
tgatggtgat  ctctatcctc  ctgtggagga  gccagttgct  agcactgatc  ctaaagcaag   540
caagaaaaag  gataaggaca  aagagaaaaa  gtttatctgg  aaccacggaa  ttactctgcc   600
tctaaagaat  gtcanggaag  aaaaaggttc  cggaagacag  ccaaagaaga  aatntnttga   660
atctncagat  gttgaaaaag  aagtgaaacg  atgctgagta  canatgctga  aactgtaata   720
ctcggggggа  aaaaattgcg  gaagatgaaa  caaggnggcc  gaaaatcaag  g              771
```

<210> 212
<211> 855
<212> DNA
<213> Homo sapiens

<400> 212
```
aaagtgaaaa  acagatgctt  ttatttattg  tattggaaac  aacttaataa  tttgcatctc    60
tacatataga  aagctgcttt  gaataactgg  gaaacaact  attgcatggg  aaaacatatg   120
caaactagca  tcattgtctc  tagactaggt  tcttcttatt  gatctcacgt  catcacaaag   180
cagcaacagc  agcttctaga  aaatggagaa  acagtaaagt  cctgcaatga  agctataatt   240
aaggntgaac  catacattcc  gctaatcctg  caactttcct  acaatcattt  ttctgcctat   300
acaatcctgc  ttcttatagg  atgaacacct  agcaaaacaa  tataaatttg  ctgaaaaaca   360
aaattacaaa  caaatgaaag  aacttaacag  aacacacagc  attaaaagga  ctaggaagag   420
caaggtctta  atacccagta  caataaagcc  aagaattttc  taatgctgac  cagtctgaag   480
actgaaatta  aatatcagtt  cttttactt  ctctaggagt  gattctagct  cctcttgcaa   540
agagctgagt  tgctcctttt  ctcggncttc  cttttgtttg  agctcatccc  agtacaagcc   600
tggaaatntg  ttcttgagaa  gccagatttt  ccactttcat  ggatgaganc  cctcttgtcg   660
tttttgccct  gtcctgggtc  ttttggagcc  ttgccctttc  atggtgncaa  tctggcttct   720
tgaattccca  taaccccgct  ggntngggtc  ccttcatttt  tccnggggcn  ggtcattttg   780
gattccattt  aaaccttggn  cccggtanct  tggcttnttc  cananacttt  tcttcccggg   840
gncnaaagga  agggt                                                        855
```

<210> 213
<211> 679
```

```
         <212> DNA
         <213> Homo sapiens

         <400> 213
5   aaagngaaaa acagatgctt ttatttattg tattggaaac aacttaataa tttgcatctc   60
     tacatataga aagctgcttt gaataactgg gaaaacaact attgcatggg aaaacatatg   120
     caaactagca tcattgtctc tagactaggt tcttcttatt gatctcacgt catcacaaag   180
     cagcaacagc agcttctaga aaatggagaa acagtaaagt cctgcaatga agctataatt   240
     aaggttgaac catacattcc gctaatcctg caactttcct acaatcattt ttctgcctat   300
10   acaatcctgc ttcttatagg atgaacacct agcaaaacaa tataaatttg ctgaaaaaca   360
     aaattacaaa caaatgaaag aacttaacag aacacacagc attaaaagga ctaggaagag   420
     caaggtctta atacccagta caataaagcc aagaattttc taatgctgac cagtctgaag   480
     actgaaatta aatatcagtt cttttactt ctctaggagt gattctagct cctcttgcaa   540
     agagctgagt tgctcctttt ctcggncttc cttttgtttg agctcatccc agtacaagcc   600
15   ctgaaaatct gtcttgagag ccagatttcc actttcatga tgaganccct cttgtcggtt   660
     ttgccctgtc cctggggtc   679

         <210> 214
         <211> 672
20   <212> DNA
         <213> Homo sapiens

         <400> 214
     ggctgggtag gcgacccgga cggagggccg gcgaggtgcg gggtctggtg atgcgagctg   60
25   cgcctctcgg caagatttcg cgctgcccat cccgggccct ttcatcagta atcggtagtg   120
     gatcactctg ccaagcggca ggaagaatta aggaaacgac aaggagacgc tcggctctct   180
     cccgcttggc tccttgcggc ctcctcttcc cttcgctccg gcccggtgaa actgaactta   240
     taatcgtcac tggattgtaa gtacccgagg cgaagagagc tcgctgagcc ctgatttttt   300
     gagtgtcttt gttccgggag agtttgtgag ttgaaagtat ctctgctggg ctttctgggc   360
30   cgaaaaccgt tccgggggag ccgccatttg ctttcctgtt ccctagctag ctagctagct   420
     ctctccgcgt tgtccggcag cggcacctag aggttgggac ttggcattgc atctgattta   480
     atgaacttaa gtctgtgaat aagcctttgt gttaacgact ggtattcggt cacagcatat   540
     ttagagaaaa gacttggagc ttaaataaaa actaaggcaa aatanacgct tagctgctga   600
     tctacaaaaa aacttntttg taattaaaag atttcaattc atagccaact ggtgttttaa   660
35   actattgcag ta   672

         <210> 215
         <211> 779
         <212> DNA
40   <213> Homo sapiens

         <400> 215
     ggtaggcgac ccggacggag ggccggcgag gtgcggggtq tggtgatgcg agctgcgcct   60
     ctcggcaaga tttcgcgctg cccatcccgg gccctttcat cagtaatcgg tagtggatca   120
45   ctctgccaag cggcaggaag aattaaggaa acgacaagga gacgctcggc tctctcccgc   180
     ttggctcctt gcggcctcct cttcccttcg ctccggcccg gtgaaactga acttataatc   240
     gtcactggat tgtaagtacc cgaggcgaag agagctcgct gagccctgat tttttgagtg   300
     tctttgttcc gggagagttt gtgagttgaa agtatctctg ctgggctttc tgggccgaaa   360
     accgttccgg gggagccgcc atttgctttc ctgttcccta gctagctagc tagctctctc   420
50   cgcgttgtcc ggcagcggca cctaaaggtt gggacttggc attgcatctg atttaatgaa   480
     cttaagtctg tgaataagcc tttgtgttaa cgactggtat tcggtcacag catatttaga   540
     gaaaagactt gggagcttaa aataaaaact aaggcaaaat agacgcttag ctgctgatct   600
     acaagaaaac ttnttgtaat tnaaaaaatt tcnattcata accaaactgg nggtttnaaa   660
     ctanttgcaa gtaacttggn acttttttaat tgtaaccncg cattttttt gggagaagtg   720
55   gaattcccan gggaaataaa agatgagtta aaaagccaaa gatgaatgct ccttcacc   779

         <210> 216
         <211> 734
         <212> DNA
60   <213> Homo sapiens

         <400> 216
     aaagggaaaa acagatgctt ttatttattg gattggaaac aacttaataa tttgcatntn   60
```
                                            78

```
     tacatatana aagctgcttt gaataactgg gaaaacaact nttgcntggg aaaacatntg    120
     caaactagca tcattgnctn tanactaggt tcttnttatt gatctcacgt catcacaaag    180
     cagcaacagc ngcttttana aaatgganaa acagtaaagn cctgcaatga anctntaatt    240
     aaggnngaac catacattcc gctaatcctg caactttcct acaatcattt ttctgcctat    300
5    acaatcctgc ttcttatagg atgaacncct agcaaaacaa tacaaatttg ntgaaaaaca    360
     aaattncaaa caaatgaaag aacttnacag aacncncagc attaaaagga ctnggaanag    420
     caaggtntta atacccagta caataaagcc aanaattttn taatgctgac cagtctgaan    480
     actgaaatta aatatcagtt ctttttactt ctctagggag ggatttctag ctcctcttgc    540
     aaanagctga gttgctcctt ttntcgggct tccttttggt tgagctcatc caggtancag    600
10   cctgaaatnt gttcttgana agcccaaatt ttccnctttt catggaagga aaaanccctc    660
     nttggtcggt ttttggcccc tggtccctng ggggtctttt ttngggagcc tttggccctt    720
     ttcattggtt gggc                                                     734
```

```
        <210> 217
15      <211> 766
        <212> DNA
        <213> Homo sapiens
```

```
        <400> 217
20   ggacggaggg ccggcgaggt gcggggtctg gtgatgcgag ctgcgcctct cggcaagatt    60
     tcgcgctgcc catcccgggc cctttcatca gtaatcggta gtggatcact ctgccaagcg    120
     gcaggaagaa ttaaggaaac gacaaggaga cgctcggctc tctcccgctt ggctccttgc    180
     ggcctcctct tcccttcgct ccggccggt gaaactgaac ttataatcgt cactggattg     240
     taagtacccg aggcgaagag agctcgctga ccctgattt tttgagtgtc tttgttccgg      300
25   gagagtttgt gagttgaaag tatctctgct gggctttctg ggccgaaaac cgttccgggg    360
     gagccgccat ttgctttcct gttccctagc tagctagcta gctctctccg cgttgtccgg    420
     cagcggcacc tagaggttgg gacttggcat tgcatctgat ttaatgaact taagtctgtg    480
     aataagcctt tgtgttaacg actggtattc ggtcacagca tatttagaga aagacttgg     540
     agcttaaata aaaactaagg caaaatagac gcttagcttg ctgatctaca gagaacttct    600
30   tgtaattnaa aaaattcaat tcatagcaaa ctggtgtttt aaactattgc agtancttgg    660
     aactttttag tgtaaccagc atttanttgg agaagtgaat cncaagggaa ttaaagatga    720
     gttaaagcca aagatgatgc ttcctcacga actgggaaga agccag                  766
```

```
        <210> 218
35      <211> 818
        <212> DNA
        <213> Homo sapiens
```

```
        <400> 218
40   cccggacgga gggccggcga ggtgcggggt ctggtgatgc gagctgcgcc tctcggcaag    60
     atttcgcgct gcccatcccg ggcccttttca tcagtaatcg gtagtggatc actctgccaa    120
     gcggcaggaa gaattaagga aacgacaagg agacgctcgg ctctctcccg cttggctcct    180
     tgcggcctcc tcttcccttc gctccggccc ggtgaaactg aacttataat cgtcactgga    240
     atggaaagac cccgaaggcg aaaaaaagct cnttganccc tgattttttg agtgtctttg    300
45   ttccgggaga gttgngantt gaaagtntnt ntnnttggct ttnttggccn aaaacccgtt    360
     ccggggaanc ngccnttgnn tttcnngttc cttacntann tanntanctt tttccgcgtt    420
     gtccggnagc ggcacntaaa ggttgggact.ggcattggat ttgaattaat gaaactaann    480
     ctgggaaaaa acccttgggg ttaccaanng gttncggccc cagcatnttt aaanaaaana    540
     cttggattta ataaaaacnt aaggngaaaa aaaaccntta ctgttgatat taaananaan    600
50   ttttttgaa  ttnaaaaaat ttcaattnat ancaaactng gngttaaaat tttgcnaaaa    660
     ctgggaaant ttttagngaa ncccnccttt tttggggaaa agnnattcnc ngggaaataa    720
     natatgttaa ancccaaann tgttncttct canaactgga aaaccngttt attttacgtt    780
     tgccctcaaa aattccnttn tttggnaaag ggcaanac                           818
```

```
        <210> 219
55      <211> 859
        <212> DNA
        <213> Homo sapiens
```

```
        <400> 219
60   aaagggaaaa acagatgctt ttatttattg tattggaaac aacttaataa tttgcatctc    60
     tacatataga aagctgcttt gaataactgg gaaaacaact attgcatggg aaaacatatg    120
     caaactagca tcattgtctc tagactaggt tcttcttatt gatctcacgt catcacaaag  .  180
```

```
cagcaacagc agcttctaga aaatggagaa acagtaaagt cctgcaatga agctataatt   240
aaggttgaac catacattcc gctaatcctg caactttcct acaatcattt ttctgcctat   300
acaatcctgc ttcttatagg atgaacacct agcaaaacaa tataaatttg ctgaaaaaca   360
aaattacaaa caaatgaaag aacttaacag aacacacagc attaaaagga ctaggaagag   420
caaggtctta atacccagta caataaagcc aagaattttc taatgctgac cagtctgaag   480
actgaaatta aatatcagtt cttttttactt ctctangagt gattctagct cctcttgcaa   540
agagctgagt tgctcctttt ctcggncttc cttttggttg agctcatcca gtacagcctg   600
aaatctgttc ttgagagcca gattttccac tttcatggat gagatcctct tgtcgtttgc   660
ctgtcctggg ctnttggagc ttgcctttca tgtggcaatc tgcttctgaa ttcccttacc   720
agctggatng ggtccttcat tttcctgggg cggtcatctg atcaattaaa cttggcctgn   780
anctggctnt tccaaacntt cctccggggc naanganggt tatatcttct tcatcttgaa   840
gccngggggct nantttnat                                               859
```

```
        <210> 220
        <211> 855
        <212> DNA
        <213> Homo sapiens

        <400> 220
aaagngaaaa acagatgctt ttatttattg tattggaaac aacttaataa tttgcatctc   60
tacatataga aagctgcttt gaataactgg gaaaacaact attgcatggg aaaacatatg   120
caaactagca tcattgtctc tagactaggt tcttcttatt gatctcacgt catcacaaag   180
cagcaacagc agcttntaga aaatggagaa acagtaaagt cctgcaatga agctataatt   240
aaggttgaac catacattcc gctaatcctg caactttcct acaatcattt ttctgcctat   300
acaatcctgc ttcttatagg atgaacacct agcaaaacaa tacaaatttg ctgaaaaaca   360
aaattacaaa caaatgaaag aacttaacag aacacacagc attaaaagga ctaggaagag   420
caaggtctta atacccagta caataaagcc aagaattttc taatgctgac cagtctgaag   480
actgaaatta aatatcagtt cttttttactt ctctaggagt gattctagct cctcttgcaa   540
agagctgagt tgctcctttt ctcggncttc cttttgnttg agctcatcca gtacagcctg   600
aaatctgttc ttgagagcca gattttcccc tttcatgaag anancctntg ncggtttgnc   660
ctgtcctggg cttttggagc ttggctttca tggtggcaat ctgcttctga attcccatta   720
acccgctgat ngggtccttc tttttcctgg ggctggtcat ctgattcatt taacttggcc   780
ctggacttng ntntccaaan ctttctccgg gggnaaagaa ggttaatttc nttttcaac    840
nttggaggcc ggggg                                                   855
```

```
        <210> 221
        <211> 881
        <212> DNA
        <213> Homo sapiens

        <400> 221
aagggaaaaa cagatgcttt tatttattgn atnggaaaca acttaataat ttgcatntnt   60
acatatanaa agctgctttg aataactggg aaaacaactn ttgntggga aaacatntgc    120
aaactagcat cattgnctnt anactaggtt cttnttattg atctcacgtc atcacaaagc   180
agcaacagca gnttntaaaa aanggganaaa cagtaaagtc ctgcaatgaa gctntaatta   240
aggntgaacc atacattccg ctaatcctgc aacttccta caatcatttt tntgcctata    300
caatcctgct tnttatagga tgaacnccta gcaaacaat ataaatttgc tgaaaaacaa    360
aattncnaac aaatgaaaga acttaacaga acncacagcn ttaaaaggac tnggaagagc    420
aaggnnttaa tacccagtnc aataaagcca anaattttnt aatgctgacc agtctgaaga   480
ctgaaattaa atatcagttn ttttttacttc tctaggagtg attctagctn ctcttgcaaa   540
gagctgagtt gctcctttc tcgggcttcc tttnggttga gctcntccan tacagcctga    600
aaattgttc tttgaaannc caaattttcc cccttcntg aaagagancc cctttggtcc      660
gttttnccct gtcctngggg cttttggaa ncttgccctt ttnatggtng ggcaatcctg     720
gcttntngaa attcccanaa cccnngntgg aatnggggtc ccttcatttt ncctggggc    780
nnggcccatc tggaatanan tnaancctgg gccctgnaaa cttngttttt cccaaanttt   840
tnccccgggg nnaaaggaan gggttatntc tctnccactt t                       881
```

```
        <210> 222
        <211> 719
        <212> DNA
        <213> Homo sapiens

        <400> 222
```

                                        7S

```
aagggaaaaa canatgcttt tatttattgn ntnggaaaca acttaataat ttgcatntnt      60
acatatanaa agctgntttg aataacnggg aaaacaactn ttgcntggga aaacatntgc     120
naactancat cattgnctnt anactaggnt nttnttattg atctcncgtc ntcncaaagc     180
agcancngcn gcttttaaaa aanggnnaaa cagtaaagnc ctgcaatgaa nctttaatta     240
aggntgaacc atacattccg ctaatcctgc aactttccta caatcatttt tntgcctata     300
caatcctgct ttttntngga tgaacncctn ncaaaacaat ttaaatttgn tgaaaaacaa     360
anttccnanc naatgaaaga acttaacnga nccccngct ttaaaaggac taggaananc      420
aaggtnttaa tncccagtcc aataaagcca aaaattttt aatgctgncc cgtctnaaaa      480
ctgaaattaa atntcaggtc tttttacttc tctaggagng gattntagcn cctcttgcaa     540
anagctgagt tgcccctttt ctcgggcttc cttttgntng agctcatncc agtacagccc     600
tggaaatntg ttnttgaaaa ccnaaanttt cccccttca tggaaagaaa aaccccttgg      660
gcggtttttg nccctggccc ngggcttttt tgggaacctg gcccttttaa tggggggggc     719
```

        <210> 223
        <211> 799
        <212> DNA
        <213> Homo sapiens

        <400> 223
```
actgtggctt ctgcatttca aatcagcact tgcagggaga caacggggtt tttgaatagt      60
atcacctggt atgaaaagtt ttcccaagaa accacaaacg attgttcatt ttttctcctt     120
ttttgttaac ttttttgccac actcaagtca gtttaagtcc tagcaaaaag acggtagtta    180
ggataccact gtggctgtag atgatgtgac actggttgaa tttgtgctgg cgtttgtgta     240
acttccctcg ctgtttgtgt ttgattcgtt aggggggcacc tggcttgaat tggctcgaag    300
gattgctcct gctgcactgc aatgtggccg cggccctggt tctggtgtgt aggtaaaggt     360
aaggctggtg gaataaatga ttccatcatt tcggaccaaa gttactggaa cctggactgg     420
ttgccggacc catctccaac cttctcggaa tgcagaaatg tctgggacga cacagagcat     480
actctctcca cacctgtaca tagtttcagc ttctacatcc ccaaaccaca ctcgtaaatt     540
tggagtgaaa ttctgtcctg taagttcaag cattgctacg tccccacccg ccattcaact     600
gaaggctctc taccacangc cncaggantg actggggcaa ggacanggcc cattccttc      660
ataaaatgta tactctggcc ttatctgngc ctaatgaatt gncccagnaa gcgccatcat     720
tttaatcaat cnctttaat tgggtccttt tgggaacatg gaagtgggcc ctgaaaattg      780
gaattatttc tttctttga                                                   799
```

        <210> 224
        <211> 852
        <212> DNA
        <213> Homo sapiens

        <400> 224
```
actgtggctt ctgcatttca aatcagcact tgcagggaga caacggggtt tttgaatagt      60
atcacctggt atgaaaagtt ttcccaagaa accacaaacg attgttcatt ttttctcctt     120
ttttgttaac ttttttgccac actcaagtca gtttaagtcc tagcaaaaag acggtagtta    180
ggataccact gtggctgtag atgatgtgac actggttgaa tttgtgctgg cgtttgtgta     240
acttccctcg ctgtttgtgt ttgattcgtt aggggggcacc tggcttgaat tggctcgaag    300
gattgctcct gctgcactgc aatgtggccg cggccctggt tctggtgtgt aggtaaaggt     360
aaggctggtg gaataaatga ttccatcatt tcggaccaaa gttactggaa cctggactgg     420
ttgccggacc catctccaac cttctcggaa tgcagaaatg tctgggacga cacagagcat     480
actctctcca cacctgtaca tagtttcagc ttctacatcc ccaaaccaca ctcgtaaatt     540
tggagtgaaa ttctgtcctg taagttcaag cattgctacg tccccacccg ccattcaact     600
gaaggctctc taccacangc accaggaatg actggggcaa nggacanggc cccattccct     660
cataaaaatg gtatacctct gccttatct ggngcttaat gattggccca aggaagcgcc      720
catcaattaa tcaatccnct ttaanttggg tccttttngg acaatgggag tngggccctg     780
gaaaattgna attatttctt ttntttgaga aaanggccca aaaataccat tcctttttctg    840
nattcccctt aa                                                          852
```

        <210> 225
        <211> 710
        <212> DNA
        <213> Homo sapiens

        <400> 225
```
gttaacttttt tgccacactc aagtcagttt aagtcctagc aaaaagacgg tagttaggat     60
```

```
          accactgtgg ctgtagatga tgtgacactg gttgaatttg tgctggcgtt tgtgtaactt    120
          ccctcgctgt ttgtgtttga ttcgttaggg ggcacctggc ttgaattggc tcgaaggatt    180
          gctcctgctg cactgcaatg tggccgcggc cctggttctg gtgtgtaggt aaaggtaagg    240
          ctggtggaat aaatgattcc atcatttcgg accaaagtta ctggaacctg gactggttgc    300
       5  cggacccatc tccaaccttc tcggaatgca gaaatgtctg ggacgacaca gagcatactc    360
          tctccacacc tgtacatagt ttcagcttct acatccccaa accacactcg taaatttgga    420
          gtgaaattct gtcctgtaag ttcaagcatt gctacgtccc caccgccatt caactgaagg    480
          ctctctacca caggcacagg agtgactggg gcaaggacag ggcccattcc ctcataaaat    540
          gtatactctt gncttatctg ngctaatgaa ttgnccagga agcgcccatc atttatcatc    600
      10  tctttatttg ggtcttttg gacatgggag tgggcctgna aattggaaat attctttttt    660
          ttggagaaaa gggcncaaat accattttct ttttctggga atcccttaaa             710


              <210> 226
              <211> 686
      15      <212> DNA
              <213> Homo sapiens


              <400> 226
          actggggctt ctgcatttca aatcagcact tgcagggaga caacggggtt tttgaatagt    60
      20  atcacctggt atgaaaagtt ttcccaagaa accacaaacg attgttcatt ttttctcctt    120
          ttttgttaac ttttttgccnc nctcaagtca gtttaagtcc tancaaaaag acggtagtta    180
          ggataccnct gnggctgtan atgatgtgac nctggttgaa tttgtgctgg cgtttgngta    240
          acttccctcg ctgtttgngt ttgattcgtt aggggggcncc tggcttgaat tggctcgaag    300
      25  gattgctcct gctgcactgc aatgtggccg cggccctggt tctggtgtgt aggtaaaggt    360
          aaggctggtg gaataaatga ttccatcatt tcggaccaaa gttactggaa cctggactgg    420
          ttgccggacc catntccaac cttntcggaa tgcaaaaatg tntgggacga cacaanagca    480
          tacttttntc cacacctgta catagtttca agcttntnca tccccaaacc acacttcnta    540
          aatttggagt gaaattctgt cctgtaagtt caagcatttg ntacgtcccc acccgccatt    600
          taaacttgaa aggnttttttt tnccccaagg ccccaaggaa gtggacctng gggccaaagg    660
      30  accaaggggc cccatttttcc cctcaa                                        686


              <210> 227
           .  <211> 722
              <212> DNA
      35      <213> Homo sapiens


              <400> 227
          actggggctt ctgcatttca aatcagcact tgcagggaga caacggggtt tttgaatagt    60
          atcacctggt atgaaaagtt ttcccaanaa accacaaacg attgttcatt ttttctcctt    120
      40  ttttgttaac ttttttgccnc actcaagtca gtttaagtcc tagcaaaaag acggtagtta    180
          ggataccact gnggctgtan atgatgtgac actggttgaa tttgtgctgg cgtttgtgta    240
          acttccctcg ctgtttgngt ttgattcgtt aggggggcncc tggcttgaat tggctcgaag    300
          ggttgctcct gctgcactgc aatgtggccg cggccctggt tctggtgtgt aggtaaaggt    360
          aaggctggtg gaataaatga ttccatcatt tcggaccaaa gttactggaa cctggactgg    420
      45  ttgccggacc catttccaac cttntcggaa tgcaaaaatg tctgggacga cacaaagcat    480
          actntntcca cacctgtaca tagtttcagc ttntacatcc ccaaaccaca ctcgtaaaat    540
          ttngagtgaa aattctgtcc ttgtaagttc aagcattgct acgtcccnc ccgccatttn    600
          aactggaagg nttnttttac cncaaggccc angaaatgaa cttgggggca aggaccang    660
          ggccccattt ccctcaatna aaangtatt acctcttggc ccttatttt ggggcctaa    720
      50  aa                                                                 722


              <210> 228
              <211> 819
              <212> DNA
      55      <213> Homo sapiens


              <400> 228
          ccaaaacatt gtatatatct gactcagaca agcgaaagca cttcatgttg tctgtaaaga    60
          tgttctatgg caacagtgat gacattggtg tgttcctcag caagcggata aaagtcatct    120
      60  ccaaaccttc caaaaagaag cagtcattga aaaatgctga cttatgcatt gcctcaggaa    180
          caaaggtggc tctgtttaat cgactacgat cccagacagt tagtaccaga tacttgcatg    240
          tagaaggagg taattttcat gccagttcac agcagtgggg agcctttttt attcatctct    300
          tggatgatga tgaatcagaa ggagaagaat tcacagtccg agatggctac atccattatg    360
```

```
      gacaaacagt caaacttgtg tgctcagtta ctggcatggc actcccaaga ttgataatta    420
      ggaaagttga taagcagacc gcattattgg atgcagatga tcctgtgtca caactccata    480
      aatgtgcatt ttaccttaag gatacagaaa gaatgtattt gtgcctttct caagaaagaa    540
      taattcaatt tcaggccact ccatgtccaa aagaaccaaa taaagagatg ataaatgatg    600
5     gcgcttnctg gacaatcatt agcacagata aggcagagta tacattttat ganggaatgg    660
      gccctgtcct tgccccaatc actcctgtgc ctgtggtaaa aaaagccttc anttgaatgg    720
      cgggggggac gtaaccaatg cttggaacct tacaggaaca aaatttcact tccaaaattt    780
      acnaatggng ggtttggggg atgtaaaaac cttgaaact                           819
```

10   `<210> 229`
          `<211> 797`
          `<212> DNA`
          `<213> Homo sapiens`

15   `<400> 229`
```
      gttaactttt tgccacactc aagtcagttt aagtcctagc aaaaagacgg tagttaggat     60
      accactgtgg ctgtagatga tgtgacactg gttgaatttg tgctggcgtt tgtgtaactt    120
      ccctcgctgt ttgtgtttga ttcgttaggg ggcacctggc ttgaattggc tcgaaggatt    180
      gctcctgctg cactgcaatg tggccgcggc cctggttctg gtgtgtaggt aaaggtaagg    240
20    ctggtggaat aaatgattcc atcatttcgg accaaagtta ctggaacctg gactggttgc    300
      cggacccatc tccaaccttc tcggaatgca gaaatgtctg ggacgacaca gagcatactc    360
      tctccacacc tgtacatagt ttcagcttct acatccccaa accacactcg taaatttgga    420
      gtgaaattct gtcctgtaag ttcaagcatt gctacgtccc caccgccatt caactgaagg    480
      ctctctacca caggcacagg agtgactggg gcaangacag ggcccattcc ctcataaaat    540
25    gtatactctg ccttatctgn gctaatgaat ggccaggaag cgccatcatt taatcatctc    600
      ttttatttgg gtcttttttgg acattgggag gtggcctgga aaatttggaa ttattttttt    660
      tttttgaan aaaaggcnca aaataccatt cttttctggg atncccttaa agggnnaaaa    720
      aaggccncca tttttnttgg gagtttggtg gaacacaang gattcatttt ggcatttccc    780
      aaaaaatggc cgggcct                                                    797
```

30   `<210> 230`
          `<211> 779`
          `<212> DNA`
          `<213> Homo sapiens`

35   `<400> 230`
```
      actgtggctt ctgcatttca aatcagcact tgcagggaga caacggggtt tttgaatagt     60
      atcacctggt atgaaaagtt ttcccaagaa accacaaacg attgttcatt ttttctcctt    120
      ttttgttaac tttttgccac actcaagtca gtttaagtcc tagcaaaaag acggtagtta    180
40    ggataccact gtggctgtag acgatgtgac actggttgaa tttgtgctgg cgtttgtgta    240
      acttccctcg ctgtttgtgt ttgattcgtt aggggcacc tggcttgaat tggctcgaag    300
      gattgctcct gctgcactgc aatgtggccg cggccctggt tctggtgtgt aggtaaaggt    360
      aaggctggtg gaataaatga ttccatcatt tcggaccaaa gttactggaa cctggactgg    420
      ttgccggacc catctccaac cttctcggaa tgcagaaatg tctgggacga cacagagcat    480
45    actctctcca cacctgtaca tagtttcagc ttctacatcc ccaaaccaca ctcgtaaatt    540
      tggagtgaaa ttctgtcctg taagttcaag cattgctacc gtccccaccc gccattcaac    600
      tgaaggctct ntaccacagg cacangaatg actggggcaa ggacaggggc ccattccctc    660
      ataaaaatgn atactctggc ctattctggg ctaatgattg gcccaggaaa ccncatcatt    720
      tatcatctct ttatttgggt cttttnggac atgggaagng gctgaaatt gaaatattt    779
```

50   `<210> 231`
          `<211> 786`
          `<212> DNA`
          `<213> Homo sapiens`

55   `<400> 231`
```
      actggggctt ctgcatttca aatcagcact tgcagggaga caacggggtt tttgaatagt     60
      atcacctggt atgaaaagtt ttcccaagaa accacaaacg attgttcatt ttttctcctt    120
      ttttgttaac tttttgccac actcaagtca gtttaagtcc tagcaaaaag acggtagtta    180
60    ggataccact gtggctgtag atgatgtgac actggttgaa tttgtgctgg cgtttgtgta    240
      acttccctcg ctgtttgtgt ttgattcgtt aggggcacc tggcttgaat tggctcgaag    300
      gattgctcct gctgcactgc aatgtggccg cggccctggt tctggtgtgt aggtaaaggt    360
      aaggctggtg gaataaatga ttccatcatt tcggaccaaa gttactggaa cctggactgg    420
```

```
        ttgccggacc catctccaac cttctcggaa tgcanaaatg tctgggacga cacagagcat    480
        actctctcca cacctgtaca tagtttcagc ttctacatcc ccaaaccaca ctcgtaaatt    540
        tggagtgaaa ttctgtnctg taaagttcaa gcattgctac gtccccaccc gncattcaac    600
        tgaaggntnt ntaccacagg cacaggaatg actgggcaa ggacanggnc cattccctta      660
  5     taaaaagnat acctctgccn tatctgngct aatgattggc caagaaaccn ccatcattta     720
        atcatctctt tattttgggt cttttngaca tngaggggc ttgnaaattg aattattntt      780
        tnttga                                                                786
```

```
            <210> 232
 10         <211> 785
            <212> DNA
            <213> Homo sapiens
```

```
            <400> 232
 15     cttttttttt tttttactg gggcttctgc atttcaaatc agcacttgca gggagacaac     60
        gggggttttg aatagtatca cctggtatga aaagtttttcc caagaaacca caaacgattg    120
        ttcattttttt ctccttttttt gttaacttttt tgccacactc aagtcagttt aagtcctanc  180
        aaaaagacgg tagttaggat accactgngg ctgtanatga tgtgacactg gttgaatttg     240
        ngctggcgtt tgngtaactt ccctcgctgt ttgtgtttga ttcgttaggg ggcncctggc     300
 20     ttgaattggc tcgaaggatt gctcctgctg cactgcaatg tggccgcggc cctggttctg     360
        gtgtgtaggt aaaggtaagg ctggtggaat aaatgattcc atcatttcgg accaaagtta     420
        ctggaacctg gactggttgc cggacccatc tccaaccttn tcggaatgca aaaatgtctg     480
        ggacgacaca aagcatactc tntccacacc tgnacataag tttcaagctt ntacatcccc     540
        aaaccacact cgtaaatttg gagtgaaatt ctgtcctgta agttcaaagc attggtacgt     600
 25     ccccaccgcc attcaactga angntntttt ccacangccc angantgact ggggcaagga     660
        canggnccat tccttatnaa aaggatactc tggcntatct gggctnaaga ntggccagna     720
        agcncctcat ttatcaactn tttatttggg tcttttggaa attggagggg cccgnaattn     780
        aatta                                                                 785
```

```
 30         <210> 233
            <211> 842
            <212> DNA
            <213> Homo sapiens
```

```
 35         <400> 233
        cttttttttt tttttactg gggcttctgc atttcaaatc agcacttgca gggagacaac     60
        gggggttttg aatagtatca cctggtatga aaagtttttcc caanaaacca caaacgattg    120
        ttcattttttt ctccttttttt gttaactttt tgccacactc aagtcagttt aagtcctagc  180
        aaaaagacgg tagttaggat accactgngg ctgtanatga tgtgacactg gttgaatttg     240
 40     tgctggcgtt tgngtaactt ccctcgctgt ttgtgtttga ttcgttaggg ggcacctggc     300
        ttgaattggc tcgaaggatt gctcctgctg cactgcaatg tggccgcggc cctggttctg     360
        gtgtgtaggt aaaggtaagg ctggtggaat aaatgattcc atcatttcgg accaaagtta     420
        ctggaacctg gactggttgc cggacccatc tccaaccttn tcggaatgca naaatgtctg     480
        ggacgacaca nagcatactc tntccacacc tgtacatagt ttcagcttnt acatccccaa     540
 45     accacactcg taaatttgga gtgaaattnt gtcctgtaag ttcaagcatt ggtacgtccc     600
        caccgccatt caactgaang nttttttcca caggcacaag aatgactggg caanggaca       660
        nggcccattt ccctcatnaa aaagnatact ctggccttat ttgggctnat gaatggccaa      720
        gaaaccccccn catttatcaa tctntttatt tgggtctttt ggganangga gggggcctgg    780
        aaaatgnaat tattntttttt ttggananaaa gncncaaaaa nattnttttt tgtnttcctt    840
 50     aa                                                                    842
```

```
            <210> 234
            <211> 871
            <212> DNA
 55         <213> Homo sapiens
```

```
            <400> 234
        cttttttttttt tttttactg gggcttctgc atttcaaatc agcacttgca gggagacaac   60
        gggggttttg aatagtatca cctggtatga aaagtttttcc caagaaacca caaacgatng   120
 60     ntcatttttt ctccttttttt gttaactttt tgccacactc aagtcagttt aagtcctagc   180
        aaaaagacgg tagttaggat accactgngg ctgtanatga tgtgacactg gttgaatttg    240
        tgctggcgtt tgngtaactt ccctcgctgt ttgtgtttga ttcgttaggg ggcncctggc    300
        ttgaattggc tcgaaggatt gctcctgctg cactgcaatg tggccgcggc cctggttntg    360
```

ㄱㅓ

```
        gtgtgtaggt aaaggtaagg ctggnggaat aaatgattcc atcatttcgg accaaagtta    420
        ctggaacctg gactggttgc cggacccatc tccaaccttn tcggaatgca naaatgtntg    480
        ggacgacaca nagcatactc tntccacacc tgtacataag tttcagcttt tacatcccca    540
        aaccacactc gtaaatttgg agtgaaattc tgtnctgtaa gttcaaacat tgntacgtcc    600
 5      cccgccatt caactgaagg nttttttccc angcccagga atgactgggg caanggcang     660
        gcccattncc ttatnaaaag gatactctgg ccttatctgg gctaaagaat tggccagaaa    720
        gcnccnccat ttataactnt ttatttgggt cttttggaca tnggagggcc ngnaaattga    780
        aatttttttt ttttganaaa agggacaaaa aaattttttt tngnttcctt aaggggaaaa    840
        ggnccctttt tgggggtggg acccaaggaa c                                   871
10

        <210> 235
        <211> 833
        <212> DNA
        <213> Homo sapiens
15

        <400> 235
        ccacagtctt tcgccagatg agaccggtgt ccagggtact ggctcctcat ctcactcggg     60
        cttatgccaa agatgtaaaa tttggtgcag atgcccgagc cttaatgctt caaggtgtag    120
        accttttagc cgatgctgtg gccgttacaa tggggccaaa gggaagaaca gtgattattg    180
20      agcagagttg gggaagtccc aaagtaacaa aagatggtgt gactgttgca aagtcaattg    240
        acttaaaaga taaatacaaa aacattggag ctaaacttgt tcaagatgtt gccaataaca    300
        caaatgaaga agctggggat ggcactacca ctgctactgt actggcacgc tctatagcca    360
        aggaaggctt cgagaagatt agcaaaggtg ctaatccagt ggaaatcang agaggtgtga    420
        tgttagctgt tgatgctgta attgctgaac ttaaaaagca gtctaaacct gtgaccaccc    480
25      ctgaagaaat tgcacaggtt gctacgattt ctgcaaacgg agacaaagaa attggcaata    540
        tcatctctga tgcaatgaaa aaagttggaa gaaagggtgt catcacagta aaggatggaa    600
        aaacactgaa tgatgaatta gaaattattg aaggcatgaa gtttgatcga ggctatattt    660
        ctccatactt tattaataca tcaaaagggc agaaatgtga attncaggat gcctatgttc    720
        tggtgagtga aaaanaaaat ttntagtntc cagtccattg tacctgcttn ttgaaattgc    780
30      caatgcttca cccgtaagcc ctttggtcat taatcccttg aaaaaagttt gat            833

        <210> 236
        <211> 753
        <212> DNA
35      <213> Homo sapiens

        <400> 236
        tctctacttt gtacacaatt attctcactc tccacagaaa ggctgcttaa cttctcatct     60
        ggtggtggca agcactaaaa tcctgatttt aacagaatag tagtaaaaat gcctcagtga    120
40      tttaagttga aagcagtaca ctggtacatg gctcttgtac ccagtatcag gaatgtacaa    180
        atgttttta ttcaaaaata aactttaaac aaattttat tacacaaagg ttgtcacata     240
        attggatact caaaataaat tatctgtagg catggacaat gacagcagta aaccattata    300
        tattttgtca actgaaacca gtaactgatg gttatagtga ttttcagcca gccttttct     360
        tcattttctc caactgactt ctctgaagtt attggtgagg aacactgcct gggcttcct     420
45      gtcacagttc attaataaag gtaaagcact agtctaggag ttagaacatg ccacctccca    480
        taccacctcc cattccaccc attgcacccca ttccagggtc cttctcttct ttaggaattt    540
        ctgtgactac aacttntgct gtagttaaca gagaggccac accagcagca tccaataaag    600
        cagttctcac aacctttggt gggtcaaatg atccttttc cccatattca caaaatctnc    660
        agcccttagc atcataacca actttttgga ggacttttg cataattttt cttnaacttt     720
50      tcaaaagatc cttcaacacc ctgcatttct tta                                753

        <210> 237
        <211> 704
        <212> DNA
55      <213> Homo sapiens

        <400> 237
        gtctcgccga gcgcacgcct tgccgccgcc ccgcagaaat gcttcggtta cccacagtct     60
        ttcgccagat gagaccggtg tccagggtac tggctcctca tctcactcgg gcttatgcca    120
60      aagatgtaaa atttggtgca gatgcccgag ccttaatgct tcaaggtgta gacctttag     180
        ccgatgctgt ggccgttaca atggggccaa agggaagaac agtgattatt gagcagagtt    240
        ggggaagtcc caaagtaaca aaagatggtg tgactgttgc aaagtcaatt gacttaaaag    300
        ataaatacaa aaacattgga gctaaacttg ttcaagatgt tgccaataac acaaatgaag    360
```

```
        aagctgggga tggcactacc actgctactg tactggcacg ctctatagcc aaggaaggct      420
        tcgagaagat tagcaaaggt gctaatccag tggaaatcag gagaggtgtg atgttagctg      480
      · ttgatgctgt aattgctgaa cttaaaaagc agtctaaacc tgtgaccacc cctgaagaaa      540
        ttgcacaggt tgctacgatt tctgcaaacg gagacaaaga aattggcaat atcatctctg      600
   5    atgcaatgaa aaaagttgga agaaanggtg tcatccagta aaaggatggn aaaaccctga      660
        atggatgaat tagaaaattt ttgaaggcat taaattttga tcca                      704


            <210> 238
            <211> 853
   10       <212> DNA
            <213> Homo sapiens


            <400> 238
        aactttaaac aaattttttat tacacaaagg ttgtcacata attggatact tctctacttt      60
   15   gtacacaatt attctcactc tccacagaaa ggctgcttaa cttctcatct ggtggtggca     120
        agcactaaaa tcctgatttt aacagaatag tagtaaaaat gcctcagtga tttaagttga     180
        aagcagtaca ctggtacatg gctcttgtac ccagtatcag gaatgtacaa atgttttta      240
        ttcaaaaata caaataaat tatctgtagg catggacaat gacagcagta aaccattata      300
        tattttgtca actgaaacca gtaactgatg gttatagtga ttttcagcca gcctttttct      360
   20   tcattttctc caactgactt ctctgaagtt attggtgagg aacactgcct tgggcttcct      420
        gtcacagttc attaataaag gtaaagcact agtctaggag ttagaacatg ccacctccca     480
        taccacctcc cattccaccc attgcaccca ttccagggtc cttctcttct ttaggaattt     540
        ctgtgactac aacttctgct gtagttaaca gagaggccac ccagcagcat ccaataaagc     600
        aagttctcac aacctttggt gggtcaatga ttcctttttc cacccatatt cacaaaatct     660
   25   ncagcccnta gcatcataac caacttctga aggaactttg cataaatttt cttcaactat     720
        tcaaagaatc cttcaaacan cctgccnttc nttaaccaaa tggggcattg ggttggaaat     780
        ttttngagng gtcctttna aanaaattnc tattanccaa attttttga accttcattt      840
        aacctgggaa gtc                                                        853


   30       <210> 239
            <211> 730
            <212> DNA
            <213> Homo sapiens


   35       <400> 239
        aactttaaac aaattttttat tacacaaagg ttgtcacata attggatact tctctacttt      60
        gtacacaatt attctcactc tccacagaaa ggctgcttaa cttctcatct ggtggnggca     120
        agcactaaaa tcctgatttt aacagaatag tagtaaaaat gcctcagtga tttaagttga     180
        aagcagtaca ctggtacatg gctcttgtac ccagtatcag gaatgtacaa atgttttta      240
   40   ttcaaaaata caaataaat tatctgtagg catggacaat gacagcagta aaccattata      300
        tattttgtca actgaaacca gtaactgatg gttatagtga ttttcagcca gcctttttct      360
        tcattttctc caactgactt ctctgaagtt attggtgagg aacactgcct tgggcttcct      420
        gtcacagttc attaataaag gtaaagcact agtctaggag ttagaacatg ccacctccca     480
        taccacctcc cattccaccc attgcaccca ttccagggtc cttctcttct ttaggaattt     540
   45   ctgtgactac aacttctgct gtagttaaca agagaggccc cacccagcag catccaataa      600
        aagcagttct cacaaccttt ggttggggca atgattcctt ttttnccccc tattcaccaa      660
        aaatcttncc agcccntagc atcataaccc nactttntgg agggaaactt tgcataaatt      720
        ttctcaactt                                                            730


   50       <210> 240
            <211> 758
            <212> DNA
            <213> Homo sapiens


   55       <400> 240
        aactttaaac aaattttttat tacacaaagg ttgtcacata attggatact tctctacttt      60
        gtacacaatt attctcactc tccacagaaa ggctgcttaa cttctcatct ggtggnggca     120
        agcactaaaa tcctgatttt aacagaatag tagtaaaaat gcctcagtga tttaagttga     180
        aagcagtaca ctggtacatg gctcttgtac ccagtatcag gaatgtacaa atgttttta      240
   60   ttcaaaaata caaataaat tatctgtagg catggacaat gacagcagta aaccattata      300
        tattttgtca actgaaacca gtaactgatg gttatagtga ttttcagcca gcctttttct      360
        tcattttctc caactgactt ctctgaagtt attggtgagg aacactgcct tgggcttcct      420
        gtcacagttc attaataaag gtaaagcact agtctaggag ttagaacatg ccacctccca     480
```

```
taccaccttc cattccaccc attgcaccca ttccanggtc cttctcttct ttaagaattt    540
ctgngactac aacttctgct ggaggttaac aaagaggcca caccagcagc attncaataa    600
aagccagttc ttcacaanct ttggtngggg tcaaaaggat ttcccttttt tccccccant    660
atttcaccaa aaatcttncc aanccccttt ggccattcat taancccaac ntttntggaa    720
gggaaacctt tggccattaa aattttctt ccaaccttt                            758
```

        <210> 241
        <211> 648
        <212> DNA
        <213> Homo sapiens

        <400> 241
```
aactttaaac aaattttat tacacaaagg ttgtcacata attggatact tctctacttt    60
gtacacaatt attctcactc tccacagaaa ggctgcttaa cttctcatct ggtggtggca    120
agcactaaaa tcctgatttt aacagaatag tagtaaaaat gcctcagtga tttaagttga    180
aagcagtaca ctggtacatg gctcttgtac ccagtatcag gaatgtacaa atgttttta    240
ttcaaaaata caaaataaat tatctgtagg catggacaat gacagcagta aaccattata    300
tattttgtca actgaaacca gtaactgatg gttatagtga ttttcagcca gcctttttct    360
tcattttctc caactgactt ctctgaagtt attggtgagg aacactgcct tgggcttcct    420
gtcacagttc attaataaag gtaaagcact agtctaggag ttgaacatg ccacctccca    480
taccacctcc cattccaccc attgcaccca ttccagggtc ccttctcttc ttttangaat    540
ttctggggac tacaacttct gctggtagtt aacagagagg gcccacacca ggcagcattc    600
ccaataaagc cagtttntca ccaacccttt ggttggggtc aaaggatt                 648
```

        <210> 242
        <211> 662
        <212> DNA
        <213> Homo sapiens

        <400> 242
```
aactttaaac aaattttat tacacaaagg ttgtcacata attggatact tctctacttt    60
gtacacaatt attctcactc tccacagaaa ggctgcttaa cttctcatct ggtggtggca    120
agcactaaaa tcctgatttt aacagaatag tagtaaaaat gcctcagtga tttaagttga    180
aagcagtaca ctggtacatg gctcttgtac ccagtatcag gaatgtacaa atgttttta    240
ttcaaaaata caaaataaat tatctgtagg catggacaat gacagcagta aaccattata    300
tattttgtca actgaaacca gtaactgatg gttatagtga ttttcagcca gcctttttct    360
tcattttctc caactgactt ctctgaagtt attggtgagg aacactgcct tgggcttcct    420
gtcacagttc attaataaag gtaaagcact agtctaggag ttgaacatg ccacctccca    480
taccacctcc cattccaccc attgcaccca ttccagggtc cttctcttct ttaggaattt    540
ctgtgactac aacttctgct gtagttaaca gagangccac acccagcagc atccaataaa    600
agcagttctc acaaccttg gtngggtcaa tgattccttt ttccccatat tcaccaaaat    660
ct                                                                   662
```

        <210> 243
        <211> 1355
        <212> DNA
        <213> Homo sapiens

        <400> 243
```
ggatggcgat ggcgtacttg gcttggagac tggcgcggcg ttcgtgtccg agttctctgc    60
aggtcactag tttcccggta gttcagctgc acatgaatag aacagcaatg agagccagtc    120
agaaggactt tgaaaattca atgaatcaag tgaaactctt gaaaaaggat ccaggaaacg    180
aagtgaagct aaaactctac gcgctatata agcaggccac tgaaggacct tgtaacatgc    240
ccaaaccagg tgtatttgac ttgatcaaca aggccaaatg ggacgcatgg aatgcccttg    300
gcagcctgcc caaggaagct gccaggcaga actatgtgga tttggtgtcc agtttgagtc    360
cttcattgga atcctctagt caggtggagc ctggaaataca caggaaatca actgggtttg    420
aaactctggt ggtgacctcc gaagatgca tcacaaagat catgttcaac cggcccaaaa    480
agaaaaatgc cataaacact gagatgtatc atgaaattat gcgtgcactt aaagctgcca    540
gcaaggatga ctcaatcatc actgtttaa caggaaatgg tgactattac agtagtggga    600
atgatctgac taacttcact gatattcccc ctggtggagt agaggagaaa gcttaaaata    660
atgcccgttt actgagggaa tttgtgggct ggtttataga ttttcctaaa ccctttgatt    720
gcaaggggggc aatggtccag ctgtgggcat ctccgtcacc ctccttgggc tattcgatgc    780
cgtgtatgca tctgacaggg caacatttca tacaccattt agtcacctag gccaaagtcc    840
```

```
ggaaggatgc tcctcttaca ctttttccgaa gataatgagc ccagccaagg caacagagat    900
gcttattttt ggaaagaagt taacagcggg agaggcatgt gctcaaggac ttgttactga    960
agtttttcct gatagcactt ttcagaaaga agtctggacc aggctgaagg catttgcaaa   1020
gcttcccccca aatgccttga gaatttcaaa agaggtaatc aggaaaagag agagagaaaa   1080
actacacgct gttaatgctg aagaatgcaa tgtccttcag ggaagatggc tatcagatga   1140
atgcacaaat gctgtggtga acttcttatc cagaaaatca aaactgtgat gaccactaca   1200
gcagagtaaa gcatgtccaa ggaaggatgt gctgttacct ctgatttcca gtactggaac   1260
taaataagct tcattgtgcc ttttgtagtg ctagaatatc aattacaatg atgatatttc   1320
actacagctc tgatgaataa aaagtttgt aaaac                                 1355
```

```
        <210> 244
        <211> 797
        <212> DNA
        <213> Homo sapiens
```

```
        <400> 244
gcgtacttgg cttggagact ggcgcggcgt tcgtgtccga ggtcactagt ttcccggtag    60
ttcagctgca catgaataga acagcaatga gagccagtca gaaggacttt gaaaattcaa   120
tgaatcaagt gaaactcttg aaaaaggatc caggaaacga agtgaagcta aaactctacg   180
cgctatataa gcaggccact gaaggacctt gtaacatgcc caaaccaggt gtatttgact   240
tgatcaacaa ggccaaatgg gacgcatgga atgcccttgg cagcctgccc aaggaagctg   300
ccaggcagaa ctatgtggat ttggtgtcca gtttgagtcc ttcattggaa tcctctagtc   360
aggtggagcc tggaacagac aggaaatcaa ctgggtttga aactctggtg gtgacctccg   420
aagatggcat cacaaagatc atgttcaacc ggcccaaaaa gaaaaatgcc ataaacactg   480
agatgtatca tgaaattatg cgtgcactta aaagctgnca ncaanggatg actcaatcat   540
cactggtttt aacaaggaaa tgggngacta ttaccagtaa gtgggaatga tctgactaaa   600
cttcacttga tattnccct ggngggagtn aaaggagaaa agcttaaaaa taatgcccgt   660
ttttacttga gggaattttg ggggctgttt tattaaaatt ttncttaaaa cctnttgatt   720
gccanngnc naatgggncc acntnggggg catttttccg nnaacccttc tttgggttnt   780
tcnatgcccg ggtttgc                                                    797
```

```
        <210> 245
        <211> 812
        <212> DNA
        <213> Homo sapiens
```

```
        <400> 245
gttttacaaa acttttattt catcagagct gtagtgaaat atcatcattg taattgatat    60
tctagcacta caaaaggcac aatgaagctt atttagttcc agtactggaa atcagaggta   120
acagcacatc cttccttgga catgctttac tctgctgtag tggtcatcac agttttgatt   180
ttctggataa gaagttcacc acagcatttg tgcattcatc tgatagccat cttccctgaa   240
ggacattgca ttcttcagca ttaacagcgt gtagtttttc tctctctctt ttcctgatta   300
cctctttga aattctcaag gcatttgggg gaagctttgc aaatgccttc agcctggtcc   360
agacttcttt ctgaaaagtg ctatcaggga aaacttcagt aacaagtcct tgagcacatg   420
cctctcccgc tgttaacttc tttccaaaaa taagcatctc tgttgccttg gctgggctca   480
ttatcttcgg aaaagtgtaa gaggagcatc cttccggact ttggcctagg tgactaaatg   540
gtgtatgaaa tgttgccctg tcagatgcat acacngcatc gaatagccca aggagggtga   600
cngagatgcc cacagctgga ccattgacca ctgcaatcag aggcttagga aaatctataa   660
aacagnccac aaaattnccctc aataaaacng nattatttta acttttcttct ctctccccan   720
ggggaaaatc agggaagnta gcagacattc cactatggna tagtaccatt tctggtnaaa   780
cagggatgaa tgagtctctt gntggcgctt aa                                  812
```

```
        <210> 246
        <211> 744
        <212> DNA
        <213> Homo sapiens
```

```
        <400> 246
ggatggcgat ggcgtacttg gcttggagac tggcgcggcg ttcgtgtccg agttctctgc    60
aggtcactag tttcccggta gttcagctgc acatgaatag aacagcaatg agagccagtc   120
agaaggactt tgaaaattca atgaatcaag tgaaactctt gaaaaaggat ccaggaaacg   180
aagtgaagct aaaactctac gcgctatata agcaggccac tgaaggacct tgtaacatgc   240
ccaaaccagg tgtatttgac ttgatcaaca aggccaaatg ggacgcatgg aatgcccttg   300
```

```
gcagcctgcc caaggaagct gccaggcaga actatgtgga tttggtgtcc agtttgagtc    360
cttcattgga atcctctagt caggtggagc ctggaacaga caggaaatca actgggtttg    420
aaactctggt ggtgacctcc gaagatggca tcacaaagat catgttcaac cggcccaaaa    480
agaaaaatgc cataaacact gagatgtatc atgaaattat gcgtgcactt aaagctgcca    540
gcaaggatga ctcaatcatc actgtttaa caggaaatgg tgactattac agtagtggga    600
atgatctgac taacttcact gatattnccc ctggtggagt agangagaaa gcttaaaata    660
atgcccgttt actganggaa tttggngggc tggtttatag attttnctaa acccttttgat    720
tgcaaggggg caatggtcca cttg                                          744
```

        <210> 247
        <211> 890
        <212> DNA
        <213> Homo sapiens

        <400> 247
```
gttttacaaa acttttattt catcagagct gtagtgaaat atcatcattg taattgatat    60
tctagcacta caaaaggcac aatgaagctt atttagttcc agtactggaa atcagaggta   120
acagcacatc cttccttgga catgctttac tctgctgtag tggtcatcac agttttgatt   180
ttctggataa gaagttcacc acagcatttg tgcattcatc tgatagccat cttccctgaa   240
ggacattgca ttcttcagca ttaacagcgt gtagtttttc tctctctctt ttcctgatta   300
cctcttttga aattctcaag gcatttgggg gaagctttgc aaatgccttc agcctggtcc   360
agacttcttt ctgaaaagtg ctatcaggga aaacttcagt aacaagtcct tgagcacatg   420
cctctcccgc tgttaacttc tttccaaaaa taagcatctc tgttgccttg gctgggctca   480
ttatcttcgg aaaagtgtaa gaggagcatc cttccggact ttggcctang tgactaaatg   540
gtgtatgaaa tgttgccctg tcagatgcat acacngnatc gaatagccca aggagggtga   600
cngagatgcc cacagctgga ccattgccac tgnaatcaga ggcttaggaa aatctataaa    660
acaagccaca aantncctca ataaaacngn antattttag ctttctcctt tctcaccang    720
gggaaaatca gngaagtagg cagacattnc cnctatggaa aagcaccatt tctggtnaaa    780
cagggaagaa tgaggcatcc tgctgggcgc nttaangcnc cctaattcat gaacaactta    840
agggtttngn attttntttt tnggccgggg gaaaagacnt tgggaagccc                890
```

        <210> 248
        <211> 876
        <212> DNA
        <213> Homo sapiens

        <400> 248
```
gttttacaaa acttttattt catcagagct gtagtgaaat atcatcattg taattgatat    60
tctagcacta caaaaggcac aatgaagctt atttagttcc agtactggaa atcagaggta   120
acagcacatc cttccttgga catgctttac tctgctgtag tggtcatcac agttttgatt   180
ttctggataa gaagttcacc acagcatttg tgcattcatc tgatagccat cttccctgaa   240
ggacattgca ttcttcagca ttaacagcgt gtagtttttc tctctctctt ttcctgatta   300
cctcttttga aattctcaag gcatttgggg gaagctttgc aaatgccttc agcctggtcc   360
agacttcttt ctgaaaagtg ctatcaggga aaacttcagt aacaagtcct tgagcacatg   420
cctctcccgc tgttaacttc tttccaaaaa taagcatctc tgttgccttg gctgggctca   480
ttatcttcgg aaaagtgtaa gaggagcatc cttccggact ttggcctagg tgactaaatg   540
gtgtatgaaa tgttgccctg tcagatgcat acacggcatc gaataagccc aaggagggtg   600
acggagatgc ccacagctgg accattgacc actgcaatca gaggcttagg aaaatctata   660
aaacagccca caaattccct naagtaaaaa cngnattatt tttagctttc ttcctctcct   720
ncaccanggg gggaatatta agggaaagtt agncnagatc attnccacta ctggnaaaag   780
caccnatttn ctggttaaaa ccagggatga atggagtcat ccttgnttgg cagctttaag   840
gcncccataa attcatgaaa ccatctcagg ggttat                             876
```

        <210> 249
        <211> 611
        <212> DNA
        <213> Homo sapiens

        <400> 249
```
cattttataa tgcgctttat ttgattaaag aatttgcctt ctttgtatac actggaatgt    60
tatattccct atgtatttta cagggttaca aaatgtctct cattttaaat attaccccaa   120
aagtaatctc agaaaaaaaa ggttttttga aattaaactt gactttaaa aaatcatacg   180
gacaaacaac tttcaaacaa aactggatta gtaggatttc ttgcctgctt aactaacatg   240
```

```
       acagagcttct tgtccoąggc ccttctcana aaaacctcat gtggaaacca agctagagat     300
       aagaattctt ccctgatgca gttaggggaa agggaaaggc tagaaacttc tttggcaagc     360
       aattccacac acagccattt atgtgtgagt gctctgcttc aagcacagta cgctntttgc     420
       agggacggcc agatgttcag agtgggaagt ggtactttc aaccagctaa aagtgcagaa      480
    5  gtcatctagt cgtctgcctc ttccccactg ccagtgcctg cagccttgca gcaacttta      540
       acccccccct atggactgga atattggagt taaaaagccc aaggctgaac tggcttgacc     600
       ctggtaaatc t                                                          611
```

            <210> 250
    10   <211> 766
            <212> DNA
            <213> Homo sapiens

            <400> 250
    15 accaaaacga tgacgcagag gtgtctctca tggaggtgcg cttctacgtc ccacccaccc   60
        aggaggatgg tgtggaccct gttgaggcct ttgcccagaa tgtgttgtca aaggcggatg   120
        taatccaggc cacgggagat gccatctgca tcttccggga gctgcagtgt ctgactcctc   180
        gtggtcgtta tgacattcgg atctaccca ccttctgca cctgcatggc aagacctttg   240
        actacaagat ccccctacacc acagtactgc gtctgttttt gttacccac aaggaccagc   300
    20 gccagatgtt ctttgtgatc agcctggatc ccccaatcaa gcaaggccaa actcgctacc   360
        acttcctgat cctcctcttc tccaaggacg aggacatttc gttgactctg aacatgaacg   420
        aggaagaagt ggagaagcgc tttgagggtc ggctcaccaa gaacatgtca ggatccctct   480
        atgagatggt cagccgggtc atgaaagcac tggtaaaccg caagatcaca gtgccaggca   540
        acttccaagg gcactcaggg gcccagtgca ttacctgttc ctacaaggca aagctcanga   600
    25 ctgctctacc cgctggagcg gggcttcatc tacgtncaca agccacctgt gcacatncgc   660
        ttcgatgaga tctnctttgt caactttgct cgnggnacca ctactacttg ttcctttgac   720
        tttgaaattg aaaancaaac aggggcactc agtattacct tcagca   766
```

            <210> 251
    30   <211> 812
            <212> DNA
            <213> Homo sapiens

            <400> 251
    35 ccaaagncag ttccctttat taaatcattt tcacagacca naaatacaaa atgaaagtan   60
        aaataggccc caggtaggag ctacaggcct ggcctnacat gacccctgct ccagcaactt   120
        gaacaggaca ngcagnagct acatccttaa ggtcgggaaa gtaanatgag gatttggatc   180
        ctgcattgcc ctgcctccca ccctatntnt ccccaaatta taaacagcca tccttgggaa   240
        gcagcaaagt taanacgtct ccccactgcc ctaggacat acncnccaac agganagcat   300
    40 gttcanatgg cacanaatcc agggactgca tttcatgagg anaaactggt ccaaaatatg   360
        ggtggggagt cgggggggtgt gaaaaggcaa gcgcaaanag aaccttcctc cgtttctact   420
        catcggatcc tgacgctgaa gcctntgagc tgggggggagt actggctagt tcttcttctt   480
        canagncctc gctcctcctc ctcnnntttn tgctctnggt ctctccccga aaagntctna   540
        tcactanaca caaactnttt gctctttgaa gctctcgctt taactgccct tganggacga   600
    45 ctttgnatan atgaaccccc ttanangggc gngggatttc tttttccatt tttnacccctt   660
        taacttntct ttcctcttct ttggacctgg ncccntctt aaaaaaaaat tcgccctcgg   720
        ccccccctttt aataattcnt tttcaggggc ttttttntnaa nannccccct tcctnggcat   780
        tccttaagcc tttggcgaaa ccccacctcc cc   812
```

    50      <210> 252
            <211> 851
            <212> DNA
            <213> Homo sapiens


    55      <400> 252
        atcaatcaac ggtggcttct ggcacagtgg caagagtaga gccaaatatt aaatggtttg      60
        gaaacacacg tgtgattaag cagtcatcat tacaaaaatt tcaagaggaa atggatacag     120
        ttatgaagga tccatacaaa gttgtcatga agcaaagcaa gttaccaatg tctcttctcc     180
        atgatcgaat ccggcctcat aacttgaagg tgcacattct tgatactgaa agttttgaaa     240
    60  ctacatttgg ccctaagtca cagaggaaac gaccaaactt atttgcaagt gatatgcagt      300
        ctcttatcga aaatgctgaa atgtccactg agagctatga ccagggcaag atcgtgatt      360
        tggtaactga agacactggt gtgagaaatg aagctcaaga agagatctat aaaaagggac     420
        agtccaaaag aatatggggt gagctctaca aggtgataga ttcatcagat gttgtagttc     480
```

```
            aagttcttga tgctagagat ccaatgggta ctcgttcccc tcacattgaa acttacctga     540
            agaaggaaaa accttggaaa cacctcattt ttgtacttaa caaatgtgac cttgttccaa     600
            cctgggcaac aaaacggngg gttgctgtcc tcttccagga ttatccaaca cttgctttnc     660
            atgcaagcct tactnacccg tttggcaagg gagcattcat tcacttntgc ggcagttttg     720
    5       gaaagttgcc cacttgncaa gaaaacagat cagnggtggg gtcattggct tttccaaagg     780
            ttggcaaaga actnttggga taaaaacaat gggttcttaa naaagntttg caacgnggct     840
            tcccattgag g                                                          851


            <210> 253
   10       <211> 812
            <212> DNA
            <213> Homo sapiens


            <400> 253
   15       gcctgttttt gtataattta ataaaaacct tttaaacatt actgcttttg tctgaatttt      60
            ttgcgttngn gtttctgtcc ctctgagtca ttggtcttct ttttgttcct gttcctattt     120
            ttcacgttgg gngtttcata gnagcgcaca ccaacttttt tcggccgttg ctgtcgtact     180
            gctcgcctcc gttcttttga tgtaagcncc ctgggagctt tatttgaatg ttcctgttcc     240
   20       tcttcccttt gngccttccg cttctttccc tttttggaag gggctctgnc atctacatct     300
            tcttccagng tttntntttg ttcttcaggt tttgcaaata tcttttcact cagtcccttg     360
            gatattctga ctgctgaaaa cttttttggct ttggctttgt ctaaaaactt ctgatatttg     420
            gcaatcttct catccagngc tttaataacg gctttggngt cgtttcccac attttcctcc     480
            tcaggctccg aggaanactc ttccgcatna tctctttgnn gctcctgttc ctcctcctct     540
   25       tcatcaaaaa agctctcaag ctcttcctca aanatctgac acctccacan gaaccangtc     600
            atccccaaaa aactgaggcn ccacgttgat tttaccaaag ttctgncnaa ctcgngngan     660
            aanctgctgc atctctgggg taagcaaaca caagggaccg ggcccttcng gntcctncct     720
            naaggangga atctggaccc ttnaccctgc agnttttngg gactttcccc ccctggaang     780
            ggtctgggct gggtttttngg ggganaaactt cc                                  812


   30       <210> 254
            <211> 871
            <212> DNA
            <213> Homo sapiens


   35       <400> 254
            atgctgagaa acttcggtcc gttgtgatgc caatggaaaa ggaaattgca gctttgaagg      60
            ataaactgac agaggctgaa gacaaaatta aagagctgga ggcctcaaag gttaaagaac     120
            tgaatcatta tctggaagct gagaaatctt gtaggactga tctagagatg tatgtagctg     180
            ttttgaatac tcagaaatct gttctacagg aagatgctga gaaactgcgg aaagaattgc     240
   40       atgaagtttg ccatctcttg gagcaagagc gacaacaaca caaccagtta aaacatacgt     300
            ggcagaaggc caatgaccag tttctggaat ctcagcgttt actgatgaga gacatgcagc     360
            gaatggagat tgtgctaact tcagaacagc tccgacaagt tgaagaactg aagaagaaag     420
            atcaggagga tgatgaacaa caaagactca ataagagaaa ggatcacaaa aaagcagatg     480
            ttgaggaaga aataaaaata ccagtagtgt gtgctttaac tcaagaagaa tcttcagccc     540
   45       agttatcaaa tgaagaggag catttagaca gcacccgtgg ctcagttcat tccttanatg     600
            caggcttgct gttgccatct ggagatcctt tcagtaaatc ggacaatgac atgtttaaag     660
            atggactcag gagagcacag tcttccagac agctttggga ccctcgggct cattgcaatn     720
            caaagcttta ggcttttacc ttccaagcca aaatcttgct tggnaaccct ggaccaagtc     780
            aaaatttttg gacccctggg tnggaaccaa aattcaagtg gtcttggana aactttggat     840
   50       cctggatttc cctttggggt cacctcccaa a                                     871


            <210> 255
            <211> 831
            <212> DNA
   55       <213> Homo sapiens


            <400> 255
            acttggcagc agctttttta atttgaacac tttnttnttg nggacncncc ttcagtacag      60
            ttaacaaatg gntacncctg aaatntgctg anagcanagc ttaanancca caattgcaaa     120
   60       ggccactgnt ggctcacttc ctcacaggct gnattacctt tcaaagctga gtgaggntgn     180
            gctntacntc ccaatacttg ntactgagng gacatgaggg gcaagtttan cnccttaaag     240
            gganaaaaaa ataggntagt atgcnnaatg ngattttgnc ctcacttcac cttaagtcat     300
            nttttttacnc ttgccaatgn gagttctgaa agggagtact ntatntgctt aaaaatgggng     360
```

```
        agngactgcc nattaaaagc cacatgataa gggaggttac nggnaaaang naaatnaggn   420
        tanacatncn tgaaaacntn taggcccnga ctgnatntna gcccaggaac nctngtgaaa   480
        cccaactgag cttttctttt gcctaaaagg gctaaatnct gccttntaca tcaagntccc   540
        atttatgctg aaaacccaat tgaaagaatt ggtttctacc tggacaggga cacantantt   600
   5    tgtttatacc caaaacacat tggntnaaca aaacttaana agctcanttn gggttttttn   660
        taccaaaaaa ggaaattccc acncggtngg gattttgccc cagntgaaac ccctanccct   720
        ttccctaaat ngggangaa ttttttttanc ccncccccectt ttttttngga naaaaaaaat   780
        ttttggaag ggggcccaan nttaanaaaa aaaacttttta tttgggaagg c            831
```

```
   10         <210> 256
               <211> 722
               <212> DNA
               <213> Homo sapiens


   15         <400> 256
        aagatggctg cgcccgagaa gatgacgttt cccgagaaac caagccacaa aaagtacagg    60
        gccgccctga agaaggagaa acgaaagaaa cgtcggcagg aacttgctcg actgagagac   120
        tcaggactct cacagaagga ggaagaggag gacactttta ttgaagaaca caactagaa    180
        gaagagaagc tattggaaag agagaggcaa agattacatg aggagtggtt gctaagagag   240
   20   cagaaggcac aagaagaatt cagaataaag aaggaaaagg aagaggcggc taaaaaacgg   300
        caagaagaac aagagagaaa gttaaaggaa caatgggaag aacagcagag gaaagagaga   360
        gaagaggagg agcagaaacg acaggagaag aaagaaaaag aggaagcttt gcagaagatg   420
        ctggatcagg ctgaaaatga gttggaaaat ggtaccacat ggcaaaaccc agaaccccg    480
        tggatttcag agtaatggag aaggatcgag ctaattgtcc cttctacagt aaaacaggag   540
   25   cttgcagatt tggagataga tgttcacgta aacataattt nccaacatcc agtcctaccc   600
        ttcttattaa gaacatgttt aacgacgttt ggaattggag cagtgcaagg agggatgact   660
        atgacccttg acccaagccc tggagttcca gccgagggaa gaaaccttnc cacagtttcc   720
        ta                                                                 722
```

```
   30         <210> 257
               <211> 606
               <212> DNA
               <213> Homo sapiens


   35         <400> 257
        aaaaaanaaa actagttttnt ttggattngg gactntnaan agtntntnt ttnttacccn    60
        acctcctnct gccncnantt ngggaccnaa aggaactttg gctccggntg ggggggntcc   120
        tggggntccg gntccggntc cggntccggg tgccccggcc ccgggtgggg gccctgntgg   180
        gggccctatt tttttccttttg cttcggnaat tgggccnntc ccnacttttt gangggcgtt   240
   40   ngggaaantt nttcccctg ggacnannac ttttcctttg ggattccca ttttttttnn   300
        aggangggnc tggactaggg nttttncttc cccncaacct gntntaaaaa tcnncggggg   360
        ggcccatcct ttccctnntt tgggagttnt tcccaaaggn ggngccagtc cgatntggaa   420
        acaannaaat gtntntatta ccntcccaaa aataattgnn gggatttctg aacccatgaa   480
        aaaagntgca gggcnttcct nttggacatt ggggggtttt naaaaaaacc caaatcgcca   540
   45   tttttcaccg ggtcacnggg caaaattaaa acttggagnt gtgggcctgc ataacaatgg   600
        gnncgg                                                             606
```

```
               <210> 258
               <211> 779
   50         <212> DNA
               <213> Homo sapiens


               <400> 258
        gtactttgag gagttcctac tcttctttct ttcttattaa ggtcttgttg ctgggttcca    60
   55   tgttgcaact tagataagaa aagattcttg tgagacctca ataaggatac tgtaccctct   120
        gaggattcag ttaccgcaga ctgtttgtca ctaacactt ttcttgtatc caaattagct   180
        tcagtttcca tttcaacatc attaccacta ggtttatctt gagaagttat tgttcttgtc   240
        ctttgcttt ctactacttt tgccgctgcc ttcattagaa aggttgatga ttttcactt    300
        agcacataat tcacataact cttaattttc tccatcatgt ggttgtagct gaagtgttga   360
   60   aaaaaggaat gaaatgtatc tttctgagag attatcataa gcaatttgct tttgaaaggc   420
        atatgagaat ttggatcacc aaatattctt tcaaagactt cttctgcttc tttaaagttg   480
        ccattttcca tacaaacagc tatagcctga atttaatta aattctgtat ttcttcatga   540
        agtttgtcat gttccttttc aattgaaccc caaatcatca gggctgattc ccaanggtgt   600
```

```
aaattcggtc atcattttca aactggggca tcaangggtt tttcctgctg catttcttgn    660
caaaaaactg acatatgtat atcggttctc aacctggcaa agctggttan aactnggata    720
gtccatgaaa aaataaccct nttggcgctt gttgcgggtc cctggcggaa gttcctcgg     779
```

          <210> 259
          <211> 705
          <212> DNA
          <213> Homo sapiens

          <400> 259
```
gttgaggaag gagctggaga ggcaggcgga gcgacttgaa aaagaacttg catctcagca     60
agagaaaagg gccattgaga aagacatgat gaaaaaggaa ataacgaaag aaagggagta    120
catgggatca aagatgttga tcttgtctca gaatattgcc caactggagg cccaggtgga    180
aaaggttaca aaggaaaaga tttcagctat taatcaactg gaggaaattc aaagccagct    240
ggcttctcgg gaaatggatg tcacaaaggt gtgtggagaa atgcgctatc agctgaataa    300
aaccaacatg gagaaggatg aggcagaaaa ggagcacaga gagttcagag caaaaactaa    360
cagggatctt gaaattaaag atcaggaaat agagaaattg agaatagaac tggatgaaag    420
caaacaacac ttggaacagg agcagcagaa ggcagccctg gccagagagg agtgcctgag    480
actaacagaa ctgctgggcg aatctgagca ccaactgcac ctcaccagac aggaaaaaga    540
tagcattcag cagagcttta gcaaggaagc aaaggcccaa gcccttcagc cagcaaaga     600
aagcaggagc ttgccacaga agatcagcaa atggaaccca ccatgcaaaa cttgaaaatg    660
aacagtnttt gttgcttgcc tccaaaaaca ttttttgcca aagtt                    705
```

          <210> 260
          <211> 755
          <212> DNA
          <213> Homo sapiens

          <400> 260
```
ctttaaaaag ttcatttatt gaaaatcata tgtataacct agcatacgaa tgagcagatt     60
taaacacata acttcaagcc atttctgaaa acatacacca ggagctctgc tcagctagag    120
tcagactcca gctccagccc gactgcgtgc ggggacagcg cccgcgttga tgaggaccag    180
ccccactgca ggctgaggcg gtgtcaccct gggaaggtcg tggtgcgttg tggcatatta    240
agtctaaacc agatgaatgt aaatatctct ttgtaaatca tttatttcac tctgttccat    300
ccaggtcagc aatcanattg tggcatgctg ggtaactggg tccgcagccg gtccacctct    360
tccgacaggc tctgcctctc caggagaagc tggttctgct tgctgaggag ctgcaccagc    420
tgctgggctg tggcctggct gtgcttatcc agctgcctta gcctttgctt catcgnctca    480
tgtactctcc catgctggac acactgttcc tccaattctt catttcttct ctgnaacttt    540
cccaatttat catatgtata ccttttttct tgactgagtt gagctatttc agatctgggt    600
ttttgagana tttggtccag tttcttgggc taatgnacaa cattcttcct ttaacttttg    660
tcaaaaatgt attcttggga ngncaacaac aaaatactgg tcattttcag ntttggcatg    720
ctgggctttc atttgctgga atcttttggg gnact                               755
```

          <210> 261
          <211> 887
          <212> DNA
          <213> Homo sapiens

          <400> 261
```
cccaaaccca tactaatgtt catatgcaga ccatcgaaag actggttaaa gaaagagatg     60
acttgatgtc tgcactagtt tccgtaagga gcagcttggc agatacgcag caaagagaag    120
caagtgctta tgaacaggtg aaacaagttt tgcaaatatc tgaggaagcc aattttgaaa    180
aaaccaaggc tttaatccag tgtgaccagt tgaggaagga gctggagagg caggcggagc    240
gacttgaaaa agaacttgca tctcagcaag agaaagggc cattgagaaa gacatgatga    300
aaaaggaaat aacgaaagaa agggagtaca tgggatcaaa gatgttgatc ttgtctcaga    360
atattgccca ctggaggcc caggtggaaa aggttacaaa ggaaaagatt tcagctatta    420
atcaactgga ggaaattcaa agccagctgg cttctcggga aatggatgtc acaaaggtgt    480
gtggagaaat gcgctatcag ctgaataaaa ccaacatgga aggatgag gcagaaaagg    540
agcacagaga gttcagagca aaaactaaca gggatcttga aattaaagat caggaaatag    600
agaaattgag aatagaactg atgaaagca aacacacttg gaacaggagc agcanaaggc    660
accctggcca aaaangagtg cctgagacta acanaactgc tgggcgaatc tgaccccact    720
gcccttancc agacaggaaa aagatacatt tagcagactt tacaanggaa gcaaaggcca    780
agccnttagg nccaccaaag anagcngggg cttgncncaa anatccacna atggaagccc    840
```

```
cccttgacaa acttgaaatg acagntttgt ggtgacctnc caaatcc                887
```

```
        <210> 262
        <211> 866
        <212> DNA
        <213> Homo sapiens


        <400> 262
ctttaaaaag ttcatttatt gaaaatcata tgtataacct agcatacgaa tgagcagatt    60
taaacacata acttcaagcc atttctgaaa acatacacca ggagctctgc tcagctagag   120
tcagactcca gctccagccc gactgcgtgc ggggacagcg cccgcgttga tgaggaccag   180
ccccactgca ggctgaggcg gtgtcaccct gggaaggtcg tggtgcgttg tggcatatta   240
agtctaaacc agatgaatgt aaatatctct ttgtaaatca tttatttcac tctgttccat   300
ccaggtcagc aatcagattg tggcatgctg ggtaactggg tccgcagccg gtccacctct   360
tccgacaggc tctgcctctc caggagaagc tggttctgct tgctgaggag ctgcaccagc   420
tgctgggctg tggcctggct gtgcttatcc agctgcctta gcctttgctt catcgtctca   480
tgtactctcc catgctggac acactgttcc tccaattctt catttcttct ctgnaacttt   540
cccaatttat catatgtata cctttttttct tgactgagtt gagctatttc aaatctggtt   600
ttttgagana ttggtccagt ttcttggcta atgtacaaca ttctttcttt aactttgcaa   660
aaatgtattc tgggaggca acaacnaaaa ctggtcattt ttnagttttg gcatgctggg   720
cttccatttg ctgnatttct gnggcaactc ctgctntntt ttcttggcct tnaaggcttg   780
ggcctttctt ccttgntaaa nctctgntga aagctaactt tttcctgctg gggangngca   840
anttggngct caaaatcccc cnacaa                                        866
```

```
        <210> 263
        <211> 798
        <212> DNA
        <213> Homo sapiens


        <400> 263
gccgaccggg aaggcggctg cgctgctggg cgggggcggg agctggagcc ggagctggag    60
ccggggccgg ggcccgggtc agcgcttgag ccnggagaag agtttgagat cgtggaccga   120
agccagctgc ccggcccagg cgacctgcgg agcgcaacga ggccgcgggc ggccgagggc   180
tggtcggcgc ccatcctgac cctggcacgc agggccaccg ggaacctgtc ggcgagctgc   240
gggagcgcgc tgcgcgcggc cgcggggctg ggcggcgggg acagcgggga cggcacggcg   300
cgcgcagctt ctaagtgcca gatgatggag gagcgtgcca acctgatgca catgatgaaa   360
ctcagcatca aggtgttgct ccagtcggct ctgagcctgg ccgcagcct ggatgcggac   420
catgccccct tgcaacaatt cttttgtagt gatggagcac tgcctcaaac atgggcttga   480
aagttaagaa aagtttttatt ggccaaaaat aaatcatttt ttggncctttt ggaacctggg   540
gganaaactt tttccaaaaa gcttnaanat ntagnggaat tagtttcana aaatnttcca   600
aaattaaaaa nacacncttn tgggnaaaag ncccnnancc gggggntttt attttttgcc   660
cctaatncaa aaaaaaaaac ttggcnattt ttttnaaaa gnngtttntt nnaaaaanaa   720
aaaatttttt tnaancggng tttttntaa cccttggggt ttntaattna ttggaaagaa   780
aaaaagggat nggtaatt                                                 798
```

```
        <210> 264
        <211> 2284
        <212> DNA
        <213> Homo sapiens


        <400> 264
gcccgcgctc cgctgctgtt gctccattcg gcgcttttct ggcggctggc tcctctccgc    60
tgccggctgc tcctcgacca ggcctccttc tcaacctcag cccgcggcgc cgacccttcc   120
ggcaccctcc cgccccgtct cgtactgtcg ccgtcaccgc cgcggctccg gccctggccc   180
cgatggctct gtgcaacgga gactccaagc tggagaatgc tggaggagac cttaaggatg   240
gccaccacca ctatgaagga gctgttgtca ttctggatgc tggtgctcag tacgggaaag   300
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cagcatttgc tataaaggaa caaggattcc gtgctattat catctctgga ggacctaatt   420
ctgtgtatgc tgaagatgct ccctggtttg atccaacaat attcactatt ggcaagcctg   480
ttcttggaat ttgctatggt atgcagatga tgaataaggt atttggaggg actgtgcaca   540
aaaaaagtgt cagaaagat ggagttttt aacattagtg tggataatac atgttcatta   600
ttcagggcc ttcagaagga agaagttgtt ttgcttacac atggagatag tgtagacaaa   660
gtagctgatg gattcaaggt tgtggcacgt tctggaaaca tagtagcagg catagcaaat   720
```

```
        gaatctaaaa agttatatgg agcacagttc caccctgaag ttggccttac agaaaatgga        780
        aaagtaatac tgaagaattt cctttatgat ataactggat gcagtggaac cttcaccgtg        840
        cagaacagag aacttgagtg tattcgagag atcaaagaga gagtaggcac gtcaaaagtt        900
        ttggttttac tcagtggtgg agtagactca acagtttgta cagctttgct aaatcgtgct        960
5       ttgaaccaag aacaagtcat tgctgtgcac attgataatg gctttatgag aaaacgagaa       1020
        agccagtctg ttgaagaggc cctcaaaaag cttggaattc aggtcaaagt gataaatgct       1080
        gctcattctt tctacaatgg aacaacaacc ctaccaatat cagatgaaga tagaaccccca       1140
        cggaaaagaa ttagcaaaac gttaaatatg accacaagtc ctgaagagaa aagaaaaatc       1200
        attggggata cttttgttaa gattgccaat gaagtaattg gagaaatgaa cttgaaacca       1260
10      gaggaggttt tccttgccca aggtactta cggcctgatc taattgaaag tgcatccctt        1320
        gttgcaagtg gcaaagctga actcatcaaa acccatcaca atgacacaga gctcatcaaa       1380
        aagttgagag aggagggaaa agtaatagaa cctctgaaag attttcataa agatgaagtg       1440
        agaattttgg gcagagaact tggacttcca gaagagttag tttccaggca tccatttcca       1500
        ggtcctggcc tggcaatcag agtaatatgt gctgaagaac cttatatttg taaggacttt       1560
15      cctgaaacca acaatatttt gaaaatagta gctgattttt ctgcaagtgt taaaaagcca       1620
        catacccctat tacagagagt caaagcctgc acaacagaag aggatcagga gaagctgatg       1680
        caaattacca gtctgcattc actgaatgcc ttcttgctgc caattaaaac tgtangtgtg       1740
        cagggtgact gtcgttccta cagttaccgt gtgtggaatc tncagtaaag atgaacctga       1800
        ctgggaatca cttattttttc tggctaggct tatacctcgc atgtgtcaca acgttaacag       1860
20      agttgtttat atatttggcc caccagttaa agaacctcct acagatgttc ctcccacttt       1920
        cttgacaaca ggggtgctca gtactttacg ccaagctgat tttgaggccc ataacattct       1980
        cagggagtct gggtatgctg ggaaaatcag ccagatgccg gtgattttga caccattaca       2040
        ttttgatcgg gacccacttc aaaagcagcc ttcatgccag agatctgtgg ttattcgaac       2100
        ctttattact agtgacttca tgactggtat acctgcaaca cctggcaatg agatccctgt       2160
25      agaggtggta ttaaagatgg tcactgagat taagaagatt cctggtatt ctcgaattat        2220
        gtatgactta acatcaaagc ccccaggaac tactgagtgg gagtaataaa cttcttgttc       2280
        tatt                                                                    2284
```

```
        <210> 265
30      <211> 788
        <212> DNA
        <213> Homo sapiens

        <400> 265
35      gcccgcgctc cgctgctgtt gctccattcg gcgcttttct ggcggctggc tcctctccgc         60
        tgccggctgc tcctcgacca ggcctccttc tcaacctcag cccgcggcgc cgaccctcc        120
        ggcaccctcc cgccccgtct cgtactgtcg ccgtcaccgc cgcggctccg gccctggccc        180
        cgatggctct gtgcaacgga gactccaagc tggagaatgc tggaggagac cttaaggatg        240
        gccaccacca ctatgaagga gctgttgtca ttctggatgc tggtgctcag tacgggaaag        300
40      tcatagaccg aagagtgagg gaactgttcg tgcagtctga aattttcccc ttggaaacac        360
        cagcatttgc tataaaggaa caaggattcc gtgctattat catctctgga ggacctaatt        420
        ctgtgtatgc tgaagatgct ccctggtttg atccaacaat attcactatt ggcaagcctg        480
        ttcttggaat ttgctatggt atgcanatga tgaataangt atttggaggt actgtgcaca        540
        aaaaaaagtg tcagaaaaga tggagttttt caacattagt gnggataata catgttcatt        600
45      attcangggc cctttanaaag gaaaaattgg ttttggctta cacatgggag aatagtgtaa       660
        aacaaagtaa cttgatggaa tcnaaggttg gggcaccgtt ctggnaaaaa tagtanccng        720
        gcntttgcaa atgaatttta aaaagttntt ttggagcaca agttnccccc ttgaagttgg        780
        ncttttacc                                                               788
```

```
50      <210> 266
        <211> 797
        <212> DNA
        <213> Homo sapiens

55      <400> 266
        naaaaaaaca anaagtttat tacnccccnct cantagttcc tgggggcttt gatgttaagt         60
        catacataat tcganaaatn ccaggaatnt tnttaatntc agngaccatn tttaataccn        120
        cctttacagg gatctcattg ccaggngttg caggtntncc agtcatgaag tcnctantaa        180
        taaaggntcg aataaccnca aatctntggc atnaaggctg nttttgaagn gggncccnat        240
60      caaaatgtaa tggngtcaaa atcnccggcn tttggntgat tttcccanca tacccaaact        300
        ccctgaaaat gttatgggcc ncaaaatcan cttggcgtaa agtactgacc ncccctgttg        360
        tcaaaaaagg gggagtaaca tntgtnggag gttntttaac tggnggggcca aatatataaa        420
        caactntgtt aacgttgtga cacatgccag gtntaagcct anccanaaaa anaagngatt        480
```

40

```
         cccagncagg gtcattttta ctgganattn ccccccctaa ctgtgggaac cacagtcccc        540
         tgcacaccta cagttttaat tngcccaaaa aaggctttca gtgaatgcca ctggnaattt        600
         gcatnaactt tncccgaacc ttttttgtgg gcanggtttt gactttntga anaagggatg        660
         nggnttttta accctgcana aaaancnact ctttttttn aaaatttggt ggtttaagaa        720
5        ancccntaaa aanataaggg ttttcaccaa attactttt ttgcncgncc cgacntgaaa        780
         aggtgcctgg naaaaac                                                        797
```

```
             <210> 267
             <211> 929
10           <212> DNA
             <213> Homo sapiens
```

```
             <400> 267
         tggaaacata gtagcaggca tagcaaatga atctaaaaag ttatatggag cacagttcca         60
15       ccctgaagtt ggccttacag aaaatggaaa agtaatactg aagaatttcc tttatgatat        120
         agctggatgc agtggaacct tcaccgtgca gaacagagaa cttgagtgta ttcgagagat        180
         caaagagaga gtaggcacgt caaaagtttt ggttttactc agtggtggag tagactcaac        240
         agtttgtaca gctttgctaa atcgtgcttt gaaccaagaa caagtcattg ctgtgcacat        300
         tgataatggc tttatgagaa aacgagaaag ccagtctgtt gaagaggccc tcaaaaagct        360
20       tggaattcag gtcaaagtga taaatgctgc tcattctttc tacaatggaa caacaaccct        420
         accaatatca gatgaagata gaaccccacg gaaaagaatt agcaaaacgt taaatatgac        480
         cacaagtcct gaagagaaaa gaaaaatcat tggggatact tttgttaaga ttgccaatga        540
         agtaattgga gaaatgaact tgaaaccaga ngaggttttc cttgcccaag gtctttacgg        600
         nctgatctaa ttgaaagtgc catnccttgt tgcaagtggc aaagcttgac tcatcaaaac        660
25       ccatcacaat gacncagagc tcatcaaaaa gttgagagan gangggaaaa gtaattagaa        720
         cctntggaaa gatttcatta aagatgaagt gagaattttt gggccanana acttggactt        780
         tccanaaana gttagttttc caggccttcc attttccagg tncctgggcc tgggcaattn        840
         aaaagtaata tgtgctggaa aaaacctttt tttttggaan gggcnttttc ttgaaaccca        900
         ccattttttt tgnaaaatag gnagctgga                                          929
```

```
30
             <210> 268
             <211> 839
             <212> DNA
             <213> Homo sapiens
35
             <400> 268
         aatagaacaa gaagtttatt actcccactc agtagttcct gggggctttg atgttaagtc         60
         atacataatt cgagaaatac caggaatctt cttaatctca gtgaccatct ttaataccac        120
         ctctacaggg atctcattgc caggtgttgc aggtatacca gtcatgaagt cactagtaat        180
40       aaaggttcga ataaccacag atctctggca tgaaggctgc ttttgaagtg ggtcccgatc        240
         aaaatgtaat ggtgtcaaaa tcaccggcat ctggctgatt ttcccagcat acccagactc        300
         cctgagaatg ttatgggcct caaaatcagc ttggcgtaaa gtactgagca cccctgttgt        360
         caagaaagtg ggagtaacat ctgtaggagg ttctttaact ggtgggccaa atatataaac        420
         aactctgtta acgttgtgac acatgcgagg tataagccta gccagaaaaa taaagtgatt        480
45       cccagtcagg ttcatcttta ctggagattc cacacacgta actgtaggaa cgacagtcac        540
         cctgcacacc tacagttttt aattggcagc aagaagggca ttcagtgaat gcagactggt        600
         aaatttgcat caagcttctc ctgancctct tctggtgggc angctttgac tcttttggaa        660
         taaggggtat ggtggctttt taacaacttg ccaaaaaaaa tcanttnctn ttttccaaaa        720
         atattggttg ggttcaagga aagtcccttc caaantataa ggnttcttca nccacatttt        780
50       tncttntgat tggccaagnc ccggaacctg ggaaannggg tgccctggga aanctnaac        839
```

```
             <210> 269
             <211> 845
             <212> DNA
55           <213> Homo sapiens
```

```
             <400> 269
         tagaaccccca cggaaaagaa ttagcaaaac gttaaatatg accacaagtc ctgaagagaa         60
         aagaaaaatc attggggata cttttgttaa gattgccaat gaagtaattg gagaaatgaa        120
60       cttgaaacca gaggaggttt tccttgccca aggtacttta cggcctgatc taattgaaag        180
         tgcatccctt gttgcaagtg gcaaagctga actcatcaaa acccatcaca atgacacaga        240
         gctcatcaga aagttgagag aggaggggaaa agtaatagaa cctctgaaag attttcataa        300
         agatgaagtg agaattttgg gcagagaact tggacttcca gaagagttag tttccaggca        360
```

```
tccatttcca ggtcctggcc tggcaatcag agtaatatgt gctgaagaac cttatatttg    420
taaggacttt cctgaaacca acaatatttt gaaaatagta gctgattttt ctgcaagtgt    480
taaaaagcca cataccc012 tacagagagt caaagcctgc acaacagaag aggatcagga    540
gaagctgatg caaattacca gtctgcattc actgaatgcc ttcttgctgc caattaaaac    600
tgtangtgtg cagggtgact gtcgttccta cagttaccgt gtgtggaatc tncagtaaag    660
atgaacctga ctgggaatca cttatttttt tggctaggct tatccctcgc atgtgtcaca    720
accgttnaca gagtggntta tntatttngg cccnccgtt naaagaaacc tnctacagaa      780
ggttcctccc actttttga caccagggggg gctcagtact ttaccccccca acctgatttt    840
ggggg                                                                 845
```

        <400> 270

```
gccgcggctc cggccctggc cccgatggct ctgtgcaacg gagactccaa gctggagaat    60
gctggaggag accttaagga tggccaccac cactatgaag gagctgttgt cattctggat    120
gctggtgctc agtacgggaa agtcatagac cgaagagtga gggaactgtt cgtgcagtct    180
gaaattttcc ccttggaaac accagcattt gctataaagg aacaaggatt ccgtgctatt    240
atcatctctg gaggacctaa ttctgtgtat gctgaagatg ctccctggtt tgatccagca    300
atattcacta ttggcaagcc tgttcttgga atttgctatg gtatgcagat gatgaataag    360
gtatttggag gtactgtgca caaaaaaagt gtcagagaag atggagtttt caacattagt    420
gtggataata catgttcatt attcaggggc cttcagaagg aagaagttgt tttgcttaca    480
catggagata gtgtagacaa agtagctgat ggattcaagg ttgtggcacg ttctggaaac    540
atagtagcag gcatagcaaa tgaatctaaa aagttatatg gagcacagtt ccaccctgaa    600
gttggcctta cagaaaatgg aaaagtaata ctgaagaatt cctttatga tataacttgg      660
atgcagtgga accttcaccg tgcaanaaca gaaaaacttg agtgtnttcn agagatcaaa    720
agagagagtn gggcccgtta aaaagttttg gttttactc agnggggggga gtagactcaa     780
caagttttgt acaagctttt gctnaaattg ggccttttga aaccaaaaaa caaagtnatt    840
ggttgggccc cattggttaa t                                               861
```

        <400> 271

```
ccactatgga ggctaaggac cagaagaaac acagaaagaa aaacagtgga cccaaagctg    60
caaagaaaaa gaagcggctt ctgcaggatc tccagctagg agacgaagaa gatgcccgga    120
agagaaatcc caaagctttt gcagttcagt ctgctgtgcg gatggctcga tcctttcaca    180
ggactcagga tttgaagaca aaaaagcatc atattccagt ggttgatcga actccactag    240
agccccacc aatagtggta gtggtgatgg gacctccaaa agttggaaag agcactttga    300
tacaatgcct cattcggaac tttacccggc agaagttgac tgagatcaga ggccctgtga    360
cgattgtgtc aggtaaaaag cgcagactca ccattattga atgtgggtgt gacattaaca    420
tgatgattga tctggctaaa gtagcagatc tggtactgat gcttatagat gccagctttg    480
ggtttgaaat ggaaacgttt gagtttctaa acatctgtca agtacatggc tttcctaaaa    540
ttatgggagt tctcacccac ctcgacttct tcaagcataa taagccaact ggaggaagac    600
aaagaagccg attaaaacac aggttctgga ccnggaagtt taccccgggt gcccaagctg    660
ttct                                                                  664
```

        <400> 272

```
gtaacaaaaa aatattttaa tgatatttct gtaggacaaa ataattaaac tgaggcaggc    60
agaggaaagt aagagaatcc acataaccac agcttacatc actttaaatc tcgacagccc    120
caagtcatga gaatgaaccc agtcccagca gcccaggctt ctctgttcct cctcctgcag    180
gcacagtttg agtagagaca tctcttgagc tctttcccac tgacttgtca ttcacaggca    240
ttcaaactgt gatgtttgaa actgtctacc tccgcagatc cagggacagt ccctccagtc    300
caaaggctca ctgcaattgg ccctcagccc ccttcaaact ggacttctgg tttcttcttt    360
```

```
ccttctgccc ctgaattctg aaagagcttct tcctgaggtc cttctgccgc ttcagcttct    420
cctcctcctc cttctgcttg gctctgaagt gctctttatt gtgcaggtgc cgctgctcct    480
tggccttctt catcttctga ctatgcaccg tactcagagc atccagcagt gcaaggatct    540
ttctttcatg aggctcgcgt atgacggccg gtctccgcct gtcctttggc accttgcctg    600
cctttgcttg ggtcttgggc ttgttcttaa atggcagggc cttctgcaan gcttttggaa    660
tgtgcagnga attaaaatgt ttcttttgcc tcaggatggc ttatacaana aagtccttgg    720
tcgncttttag tctgacgcca ttgggcgaan cctgaatttg gnccgnggnc cgaattcctg    780
gaccaggngg ctttcttacc ccctgggttt naaanaaaaa ggttactggg gtatanaacc    840
cttgggatng gaaacaggat accaagtttc cattg                               875
```

```
        <210> 273
        <211> 813
        <212> DNA
        <213> Homo sapiens


        <400> 273
aacaaaaaaa tattttaatg atatttctgn aggacaaaat aattaaactg nggcaggcag     60
aggaaagtaa ganaatccac ataaccncag cttacatcac tttaaatctc gacagcccca    120
agtcatgana atgaacccag tcccagcagc ccaggcttnt ntgttcctcc tcctgcaggc    180
ncagtttgag tananacatn tnttgagctc tttcccactg acttgtcatt cacaggcatt    240
caaactgnga tgtttgaaac tgtctacctc cgcanatcca gggacagtcc ctccagtcca    300
aaggctcact gnaattggcc ctcagccccc ttcaaactgg acttctggtt tcttctttcc    360
ttctgcccct gaattctgaa gagcttcttc ctgaggtcct tctgccgctt cagcttctcc    420
tcctcctcct tctgcttggc tctgaagggc tctttattgn gcaggngccg ctgctccttg    480
gccttcttca tcttctgact atgcaccgta ctcaaagcat ccagcagtgc aagggatctt    540
tntttcatga aggctcgcgt atgacngccg ggctccgcct gtccttttgg caccttgcct    600
gccttttggt ttggggcttg ggcttgnttc ttaaangggg angggccttn tggcaanggg    660
ttttgggaaa nggccangga aattaaaaan gtttcttttt gccctcaagg attggnntta    720
taccaaanan ggcccttgtt tccccctttn atttttggac cccctngggg ccaacccttg    780
nattnggccc gggggggcccc attccttgga cca                               813
```

```
        <210> 274
        <211> 800
        <212> DNA
        <213> Homo sapiens


        <400> 274
aacaaaaaaa tattttaatg atatttctgt aggacaaaat aattaaactg aggcaggcag     60
aggaaagtaa gagaatccac ataaccacag cttacatcac tttaaatctc gacagcccca    120
agtcatgaga atgaacccag tcccagcagc ccaggcttct ctgttcctcc tcctgcaggc    180
acagtttgag tagagacatc tcttgagctc tttcccactg acttgtcatt cacaggcatt    240
caaactgtga tgtttgaaac tgtctacctc cgcagatcca gggacagtcc ctccagtcca    300
aaggctcact gcaattggcc ctcagccccc ttcaaactgg acttctggtt tcttctttcc    360
ttctgcccct gaattctgaa gagcttcttc ctgaggtcct tctgccgctt cagcttctcc    420
tcctcctcct tctgcttggc tctgaagtgc tctttattgt gcaggtgccg ctgctccttg    480
gccttcttca tcttctgact atgcaccgta ctcagagcat ccagcagtgc aaggatcttt    540
ctttcatgag gctcgcgtat gacggccggt ctccgcctgt ctttggcacc ttgcctgcct    600
ttgcttgggc ttgggcttgg tcttaatgg nanggccttn tgcaangntt ttgggaatgn    660
gcaagggaat taaaaaggtt tcttttggcc taaggattgg cttattcaaa nangtccttg    720
gtcgcctttt agtntgacnc catnggggcga accctgaatt nggcccgngg gcccncantt    780
cctggaccag ggggttttt                                                800
```

```
        <210> 275
        <211> 753
        <212> DNA
        <213> Homo sapiens


        <400> 275
gattaactat gttttggtcg tctatggact tgccatttct ctccttggaa taggacagcc     60
tgaggaatta tctgaagccg aaaaccagtt taagaggatt attgaacact accccagtga    120
gggccttgat tgcttggcct actgtggaat tggaaaagta tatttgaaaa aaaacagatt    180
tctagaagct ctcaatcact ttgagaaagc aagaaccttg atttatcgtc ttcctggagt    240
gttaacttgg cccacgagta atgtgattat tgaagagtct cagccacaaa aaataaagat    300
```

```
        gctgttagag aaatttgttg aagaatgcaa gttccctcca gtgccagatg ccatttgttg    360
        ctatcagaag tgccatggat attctaagat ccagatatac ataactgatc cagactttaa    420
        gggtttata cgcatcagct gttgccagta ctgtaaaata gaatttcaca tgaattgctg    480
   5    gaagaagtta aaaactacaa cctttaatga taaaattgac aaggattttc tacaaggaat    540
        atgtcttacc cctgactgtg aangtgtcat ttctaagatt atcatcttca gcagtggtgg    600
        tgaagttaaa tgtgaatttg aacacaaggt cataaaagaa aaggttnctt caagacctat    660
        tctgaaacag aaatgttcta gcctanagaa actaagactg gaagaagaca aaaaattgga    720
        agagaaagga tnccaaaaaa aagaaccaaa aag                                 753
```

10   <210> 276
        <211> 673
        <212> DNA
        <213> Homo sapiens

15   <400> 276
```
        cttgagccgt gatgcaacct tcttcagtgc aatacagttg tcaatcacaa caaaacgagg     60
        gcatcccaag agaaaaggtt ttaaacctcc tgcttttct agtatctgtc gagtttcttc    120
        tgggaaaaac tcatattctg cagagaacat cttgttactc atgtccaagg gaccatgttc    180
        ctccaaaaac tgagagaagt aatcatatag agttgaacat ttttgtttg ggttcatgtc    240
   20   ccatagcttc ttattgcgga caacatattc gttactgtgt tggtcataga gagcttcgaa    300
        ttcttctaca tcttgccgaa gatggtcagg cactgcaaat gggcctgcan aatctgaatt    360
        tcgattgcta tggtcttcac ttgaagtgat gatctcatta tttgaagtta ctgaagttgt    420
        tccagaccca actaacatag gctttgaatc ctttggcttc ttttttcttgc ttttgntttt    480
        caccttggtt gaactaaacg gtgcttcacc actatcttgt ttccttaaca cagtacaagc    540
   25   gggtgtccat tatatcaaaa gaattcatct aaagcactat gcaatgctgg ggaaccttgg    600
        cttctggggt cttctagcnn cccntatttt aaacaaaccg ggcctttcct tcaaatngaa    660
        gcctgggctt cca                                                      673
```

        <210> 277
30   <211> 661
        <212> DNA
        <213> Homo sapiens

        <400> 277
35   agttgctgaa cggtttagat cctcaaaaaa taaagcaatt gaacctggcc atgattaact   60
        atgttttggt cgtctatgga cttgccattt ctctccttgg aataggacag cctgaggaat   120
        tatctgaagc cgaaaaccag tttaagagga ttattgaaca ctaccccagt gagggccttg   180
        attgcttggc ctactgtgga attggaaaag tgtatttgaa aaaaaacaga tttctagaag   240
        ctctcaatca ctttgagaaa gcaagaacct tgatttatcg tcttcctgga gtgttaactt   300
40   ggcccacgag taatgtgatt attgaagagt ctcagccaca aaaaataaag atgctgttag   360
        agaaatttgt tgaagaatgc aagttccctc cagtgccaga tgccatttgt tgctatcaga   420
        agtgccatgg atattctaag atccagatat acataactga tccagacttt aagggtttta   480
        tacgcatcag ctgttgccag tactgtaaaa tagaatttca catgaattgc tggaagaagt   540
        taaaaactac aacctttaat gataaaattg acagggatt ttctacaagg gaatatgtct   600
45   taccccctgac tgtgaanggg tcatttctaa anattatcat cttcagcagt gggtgggtga   660
        a   661

        <210> 278
        <211> 867
50   <212> DNA
        <213> Homo sapiens

        <400> 278
        cttgagccgt gatgcaacct tcttcagtgc aatacagttg tcaatcacaa caaaacgagg   60
55   gcatcccaag agaaaaggtt ttaaacctcc tgcttttct agtatctgtc gagtttcttc   120
        tgggaaaaac tcatattctg cagagaacat cttgttactc atgtccaagg gaccatgttc   180
        ctccaaaaac tgagagaagt aatcatatag agttgaacat ttttgtttg ggttcatgtc   240
        ccatagcttc ttattgcgga caacatattc gttactgtgt tggtcataga gagcttcgaa   300
        ttcttctaca tcttgccgaa gatggtcagg cactgcaaat gggcctgcag aatctgaatt   360
60   tcgattgcta tggtcttcac ttgaagtgat gatctcatta tttgaagtta ctgaagttgt   420
        tccagaccca actaacatag gctttgaatc ctttggcttc ttttttcttgc ttttgttttt   480
        caccttggtt gaactaaacg gngcttcacc actatcttgt ttccttaaca cagtacagcg   540
        ggtgccatta tatcaaagaa ttcatctaaa gcactatgca atgctgggga acttggctct   600
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                                    9Ч

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      ggggtcttct agcaccatat taaacaacgg ctttctttaa tgatgctggc tcaaaaaaaa   660
      aatcaaagtg ctttncttnt ataaagctaa gttgggganct ttttttattt tccaanggaa   720
      aggcntgatt cttaaaatca agccgtttaa aaaagctcct taccanaaaa anaaagttct   780
      ggggcattta aaccaagctn ttaaattttg ggancnggcg ggtnatttgg gctcnctttt   840
  5   ttaactccct cnaaaaatgc cnaaaat   867

          <210> 279
          <211> 719
          <212> DNA
 10   <213> Homo sapiens

          <400> 279
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      gcatcccaag agaaaaggtt ttaaacctcc tgcttttttct agtatctgtc gagtttcttc   120
 15   tgggaaaaac tcatattctg cagagaacat cttgttactc atgtccaagg gaccatgttc   180
      ctccaaaaac tgagagaagt aatcatatag agttgaacat ttttgttttg ggttcatgtc   240
      ccatagcttc ttattgcgga caacatattc gttactgtgt tggtcataga gagcttcgaa   300
      ttcttctaca tcttgccgaa gatggtcagg cactgcaaat gggcctgcag aatctgaatt   360
      tcgattgcta tggtcttcac ttgaagtgat gatctcatta tttgaagtta ctgaagttgt   420
 20   tccagaccca actaacatag gctttgaatc ctttggcttc tttttcttgc ttttgttttt   480
      caccttggtt gaactaaacg gngcttcacc actatcttgt ttccttaaca caagtacaag   540
      cggntgtnca ttatatcaaa agaattcatc ttaaagcact atgcaatgct ggggaacttg   600
      gctctgggtt cttctagcca gccatattaa aacaacggc ttccttcaaa tgatgcntgg   660
      ctcaaanaaa anantcaagg ntgcttttcc ttctantana agcctagttt ggngaccct   719
 25

          <210> 280
          <211> 764
          <212> DNA
          <213> Homo sapiens
 30

          <400> 280
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      agcaaagaga aaacaagaag aagaagagag aaagaaaagg gaagatgatg aaaaacgcat   120
      tcaagctgaa gtggaggcac agctggcccg acagaaggag gaggaatccc aacagcaagc   180
 35   agttctggag caggagcgca gggaccggga gctggccctg aggattgccc agagtgaagc   240
      cgagctcatc agtgatgagg cccaggccga cctggcgctg cggagcttgg attcctatcc   300
      ggtaacttct aaaaatgatg gaacaagacc caaaatgaca ccggaacaaa tggccaaaga   360
      aatgtcagaa tttttgagta gaggtcctgc tgtactagcc accaaagcag ctgctggtac   420
      taagaaatat gatcttagta aatggaaata tgcagaacta cgtgatacca tcaatacttc   480
 40   ttgtgatatt gagctcctgg cagcttgcag agaagaattt cataggagac taaaagtgta   540
      tcatgcttgg aaatctaaga acaagaagag aaatctggaa cagagcaacg tgctccaaag   600
      tctgttactg attatgctca gcaaaaccca gcagctttaa aattccttgc caggcagcgg   660
      gagattgaaa tgaaaccgac aggcacgctt ttttccgcat tccattcatt ccgcccttgc   720
      cgacccagtt ccaaagaccc cttcagagtn agaaaaaaaa ggct   764
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          <210> 281
          <211> 893
          <212> DNA
          <213> Homo sapiens
 50

          <400> 281
      actttataat tttattctaa aatacnacaa aactccttan aattatgnca gcataactcc   60
      ttgntgnatt tttggcttta aattccaaat gngaaagnca taaatattag gnttaaagct   120
      gntgncnttt gaatcaatac taacngcnca caaagaaaac attttaaaat tatnagttat   180
 55   gtaaaacaag cncttactaa atacnaggnt ttntgaatta caaagcttat gaaacagggc   240
      tacnattacc aaaacctnaa aggncnaaaa agacnctngg aatttcttaa aaagaaagat   300
      gntggaagcn gaacncttac taaatcaatg aaacnacttg gacnagantc tgatacnaaa   360
      atnactnttg ngangaantt gaaagaatnt ttgaattcag tccnnntaan ccactntgcc   420
      acctaaaacc tatttncttt tntaattgaa acaaaactta tntnaaaact tttaggcntt   480
 60   taaacnatct gaatttcctt tatttttccc cngaatttna aaagaatntt ctgacagcaa   540
      cacacattgn gcttgcaaag aaaagncaat ntgngctgga tactattagt acccctatc   600
      ccagaataca tcaattcntt taggntnttt ntanaatttt tagaacttc gaagnggttt   660
      tatttcaact taagaccctg ncaangggg ggaaaaaaaa tggattttt cnccccttt   720
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                                 95

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aatgggaaat tttccaaaaa atgngcttgg aaaaatgngc ttntaaaagn anccccaagg    780
ttttttcaaa aaccaaaaaa aantaggggg gccttgganc aattttaaaa ggggggtta    840
agttattngg gaannaaaag gtaaaacctn atggttttta tttacctccc agt          893
```

         <210> 282
         <211> 787
         <212> DNA
         <213> Homo sapiens

         <400> 282
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ggaaagaaaa agacgtgaag aagacgaaaa acgtcgaaga aaggaagagg aggaaaggcg    60
gatgaaactt gagatggaag caaagagaaa acaagaagaa gaagagagaa agaaaaggga    120
agatgatgaa aaacgcattc aagctgaagt ggaggcacag ctggcccgac agaaggagga    180
ggaatcccaa cagcaagcag ttctggagca ggagcgcagg gaccgggagc tggccctgag    240
gattgcccag agtgaagccg agctcatcag tgatgaggcc caggccgacc tggcgctgcg    300
gagaggtcct gctgtactag ccaccaaagc agctgctggt actaagaaat atgatcttag    360
taaatggaaa tatgcagaac tacgtgatac catcaatact tcttgtgata ttgagctcct    420
ggcagcttgc agagaagaat ttcataggag actaaaagtg tatcatgctt ggaaatctaa    480
gaacaagaag agaaatactg aaacagagca acgtgctcca aagtctgtta ctgattatgc    540
tcagcaaaac ccagcagctc agattcctgc caggcagcgg gagattgaaa tgaacccgac    600
agcaacgctt ctttcgcatn ccattcattc cgccttgccc gaccagtaca aagaccctc    660
agagtaagaa aaaanggctg gnggtatgnc ccntttgatg gaccatggga ttgcccggcc    720
aaatggaact tcattcttga caagnccncc cttnctactt ttggcttggt aagggccaac    780
attggga                                                             787
```

         <210> 283
         <211> 724
         <212> DNA
         <213> Homo sapiens

         <400> 283
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actttataat tttattctaa aatacaacaa aactccttag aattatgtca gcataactcc    60
ttgatgtatt tttgtcttta aattccaaat gtgaaagtca taaatattag gcttaaagct    120
gctgacattt gaatcaatac taacagcaca caaagaaaac attttaaaat tatcagttat    180
gtaaaacaag cacttactaa atacaaggat ttctgaatta caaagcttat gaaacaggtc    240
tacaattacc aaaacctcaa aggccaaaaa agacactagg aatttcttaa aaagaaagat    300
gttggaagca gaacacttac taaatcaatg aaacaacttg gacaagattc tgatacaaaa    360
atcactattg agatgaagtt gaaagaatat ttgaattcag tccagttaag ccactatgcc    420
acctaaaacc tatttccttt tctaattgaa acaaaactta tctcaaaact tttaggcatt    480
taaacaatct gaatttcctt tattttttcca cagaatataa aaagaatttt ctgacagcaa    540
cacacattgt gctagcaaaa gaaaagcaaa tctgngctgg atctattaag tacctcttat    600
tcccagaatt ccatcnaata cntttaanngg ctctttctta anaattctta anaaccttcc    660
gaaagnggtt ttcantttca aacctaaaga ccacttgcaa aaggggggga aaaaaaaatt    720
tgga                                                                724
```

         <210> 284
         <211> 729
         <212> DNA
         <213> Homo sapiens

         <400> 284
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actttataat tttattctaa aatacaacaa aactccttag aattatgtca gcataactcc    60
ttgatgtatt tttgtcttta aattccaaat gtgaaagtca taaatattag gcttaaagct    120
gctgacattt gaatcaatac taacagcaca caaagaaaac attttaaaat tatcagttat    180
gtaaaacaag cacttactaa atacaaggat ttctgaatta caaagcttat gaaacaggtc    240
tacaattacc aaaacctcaa aggccaaaaa agacactagg aatttcttaa aaagaaagat    300
gttggaagca gaacacttac taaatcaatg aaacaacttg gacaagattc tgatacaaaa    360
atcactattg agatgaagtt gaaagaatat ttgaattcag tccagttaag ccactatgcc    420
acctaaaacc tatttccttt tctaattgaa acaaaactta tctcaaaact tttaggcatt    480
taaacaatct gaatttcctt tattttttccn cagaatataa aaaggaatat tctgacagca    540
acacacattg tgctagcaaa gaaaagcaaa tctgngctgg atactattag gtaccctctt    600
atcccggaat acatcaaata cnttaanngc tctttttctan aattctanna accttcgnaa    660
gtggtttcan ttcaaaacct aaagaccccct ggccaaangg gngggaaaaa aaaattagga    720
```

atttttccc   729

```
         <210> 285
         <211> 650
         <212> DNA
         <213> Homo sapiens


         <400> 285
aaactggccc tgtctgatgg tggaatcatt tcaggagtaa gaacgtgagg aggatcaatt    60
tacaaaagaa catcatagga tcaagtcctg ttgcagattt ctctgctatt aaggaactag   120
atactcttaa caatgaaata gttgacctac agagggaaaa gaataatgtg gaacaggacc   180
ttaaggagaa ggaagatact attaaacaga ggacaagtga ggttcaggat cttcaagatg   240
aagttcaaag ggagaatact aatctgcaaa aactacaggc ccagaaacag caggtacagg   300
aactccttga tgaactggat gagcagaaag cccagctgga ggagcaactc aaggaagtca   360
gaaagaaatg tgctgaggag gcccaactga tctcttctct gaaagctgaa ttaactagtc   420
aggaatcgca gatctccact tatgaagaag aattggcaaa agctagagaa gaactgagcc   480
gtctacagca agaaacacag aattggaggg anagtgtaaa gtcagggaag gctcagtttg   540
gnacctnttt agcagcacct acaagattca caacanggaa attagttcaa tgccaatgaa   600
acttgttgga atgaaagatt ttggaaaatc attatagtca gttnaattgg             650


         <210> 286
         <211> 772
         <212> DNA
         <213> Homo sapiens


         <400> 286
aattggatat tttggaattt atttataggc taggcaataa gttactcaga ttaacacaga    60
tcaataccac cttgacttgt tgacccagag aattctaatt agattttagg tgcattttttc  120
tttatcttgg tatttaatac atcatctaag tcagtaaccg tgttaaacaa aattaaaatg   180
acaagttaca gcttacttca cagtctattt caaattcagc ttgtccacta ggtcagtttt   240
acaggagatg gtcttttaac atgaagaggt ctgataatct ggcaggtctc ttctctccca   300
attaaaaaaa caagagtttt tttgctagct tgacaatttt ataggtgaaa aacatgaagt   360
gagtaaataa actaaaccac aaagatggac aaaaagcaat atgatataaa acacatcact   420
ttttctattt gtattcagtg aaagttttta catttcaagt aaatgagcct tcattaaaaa   480
aaaaaaacaa atatatatga aaaattaaag tccttccagt tctagcttgc tgaagtttct   540
tctgcaaaag tacaaaaatt aacccactaa gaactaaaca ggacagggcc acggcaaang   600
cagaatggct gccatgttaa gactttttgct tgccttatac tgatgggtat attttaggng   660
ataaaatttc tncactatct atccttaaaa tgaacatttt cttacaacnt tattgntaag   720
aactgatttt attaantaac aacacnctgg gaggnttntg gtggctaaaa tc           772


         <210> 287
         <211> 660
         <212> DNA
         <213> Homo sapiens


         <400> 287
cggcggccca gctctctctg acacagttat caagtgggaa tcctgtatat gaaaaatact    60
atagacaggt tgatacaggc aatactggaa gggtgttggc ttctgatgct gctgctttcc   120
tgaaaaaatc agggcttcca gacttgatac ttggaaagat ttgggattta ccgacacag    180
atggcaaagg tatcctgaac aaacaagaat tctttgttgc tttgcgtctt gtggcatgtg   240
cccagaatgg attggaagtt tcactaagta gtttgaacct ggctgttcct ccaccaagat   300
ttcatgatac cagtagtcct ttgctaatca gtggaacctc tgcagctgag ctcccatggg   360
ctgtaaaacc tgaagataag gccaaatatg atgcaatatt tgatagttca agcccagtga   420
atggatttct gtctggtgat aaagtgaaac cagtgttgct caactctaag ttacctgtgg   480
atatccttgg aagagtttgg gagttgagtg atattgacca tgatggaatg cttgacagan   540
atgantttgc agttgccatg ttttttggtat actgngccac tgggaaaaag aacctgtgcc   600
aatgtccttg cctncagcct tgggtgcccc ccatcttaag aaaaaaaacc tnggttggta   660


         <210> 288
         <211> 815
         <212> DNA
         <213> Homo sapiens
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                                    97

<400> 288
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gaattggata ttttggaatt tatttatagg ctaggcaata agttactcag attaacacag      60
atcaatacca ccttgacttg ttgacccaga gaattctaat tagattttag gngcattttt     120
ctttatcttg gtatttaata catcatctaa gtcagtaacc gngttaaaca aaattaaaat     180
gacaagttac agcttacttc acagtctatt tcaaattcag cttgtccact aggtcagttt     240
tacaggagat ggtcttttaa catgaagagg tctgataatc tggcaggtct cttctctccc     300
aattaaaaaa acaagagttt ttttgctagc ttgacaattt tataggtgaa aaacatgaag     360
tgagtaaata aactaaacca caaagatgga caaaaagcaa tatgatataa aacacatcac     420
ttttctatt tgtattcagt gaaagttttt acatttcaag taaatgagcc ttcattaaaa     480
aaaaaaaaac aaatatatat gaaaaattaa agtccttcca gttctagctt gctgaagttt     540
cttctgcaaa agtacaaaaa ttaacccact aagaactaaa caggacaggg cccengnaaa     600
ngcagaatgg ctgccatgtt aanacttttg cttgccttat acctgatggg natattttan     660
ggggganaaat ttctnccctn tctatcactt aaaaggaaca ttttntttnc aactttnttt     720
gtaagaaacc ggntttntt tattagccaa cccccctggg angggtttgg tggacctaaa     780
aattntntaa aanccaaana aaanttttt aaaaa                                815
```

<210> 289
<211> 978
<212> DNA
<213> Homo sapiens

<400> 289
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aggagcttac ggtgttccag tcaaaagacg tacctgaaaa gacatcatca cctgaagaat      60
ccataaggat gacgaaaggc atcaccatgg caacagccaa agccgtggca gctgggaact     120
catgtagaca ggaggacgtg attgctactg ccaacctgag ccggaaagcc gtgtcagata     180
tgttgacggc ttgcaagcaa gcatccttcc accccgatgt cagtgacgag gtgagaacca     240
gagccttgcg tttcgggacg gagtgcaccc ttggctactt ggacctcctg gagcacgtct     300
tggtgattct tcagaaacca accccagaat tcaagcagca gctggccgct ttctccaagc     360
gagtcgccgg cgctgtgaca gagctcatcc aggcggcgga agccatgaaa ggaacagagt     420
gggtggatcc agaagaccca actgtcattg cagaaacaga gttactgggg gctgcagcat     480
ccatcgaagc tgctgctaag aagttagagc aactgaagcc aagagcaaaa ccaaaacaag     540
cgggatgaga ccctggactt ttgaggaaca gatctttgga agctgnttaa atccattgct     600
gctggcacaa gcgccctggt caaatcggnc tcagcaaccc cananggagc tngtggncca     660
aggaaangng ggctccatcc ttgccnatgc ttgaaacnac ggacaagtgg tcacaagggg     720
cttgattttt tgcttgcccg gatggnggnn ggnttgcaac cagcaatttt ntgtgaaggn     780
gggccaatgg ccttccgttc aaggggnccc ccccancgaa gggganaanct tnantttnat     840
ttttgcccan canggtcgcc cgttttccac gggtttaaan tttgnttggg nggccttgca     900
anggnngaaa ggncccccccc cngaatttca aaaggccctt ganggngggt ttcanggccg     960
ggngggnaaa tgcttntg                                                   978
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<210> 290
<211> 898
<212> DNA
<213> Homo sapiens

<400> 290
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ngagtcactg aggaagctct ttattccagc anaatcccca ccctggacgc taaggagacg      60
agcattccac tgactgtcaa ctgggagccg tgggtttgtg tggatgactc tgtgtgagct     120
gaaacagcct ctgcagggta aggagcccac agactgtatt acagccctg ctcaccaagc     180
cccgacggcc ttccgcaact ntgcccttg gactacggag gaacaaaata atcgttcagt     240
tttctggcc acaaaataca anatgggtct gggttgtaca aggagcttac acacggaggc     300
aanaaagcgt gcaaacaggg gcgggaattt ttcaccccct gggtgagcca gtgctcaaga     360
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tatgaaccat gtccaactcc agcttccgtc ttctcctgag aggaagaaga atattctatg     480
acgtcaatga ttttttcc tatcacaata tcataaagag gtccaggagc aggcctaaga     540
gaaggaccaa caaaagccaa agtgtctgan aacaacataa tactgacttt tctttgttgg     600
taacaagtcc atgaaacgtg caccccctntt ttctganaca cngtgaggca tganggggang     660
cggcaaaaga attttgggta ngacatttta ccgntgacat acgaacattc caccngntgcc     720
cacgggacaa aaatgtgaaa acaaccccccn nggntttcan gcttancccg ggangganng     780
gggnggtttc actnaatgcc caanccttna ngaacactgt ttgtccaatt naaccanggg     840
cattccctng gggtcgcatt ttggcntcca ncttttaaccc ctantttccc ttaanttg     898
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<210> 291

<211> 603
<212> DNA
<213> Homo sapiens

5   <400> 291
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cacctgaaga atccatangg atgacgaaag gcatcaccat ggcaacagcc aaagccgtgg   120
cagctgggaa ctcatgtana caggaggacg tgattgctac tgccaacctg agccggaaag   180
ccgtgtcaga tatgttgacg gcttgcaagc aagcatcctt ccaccccgat gtcagtgacg   240
10   aggtgagaac canagccttg cgtttcggga cggagtgcac ccttggctac ttggacctcc   300
tggagcacgt cttggtgatt cttcagaaac caaccccaga attcaagcag cagctggccg   360
ctttctccaa gcgagtcgcc ggcgctgtga cagagctcat ccaggcggcg gaagccatga   420
aaggaacaga gtgggtggat ccagaagacc caactgtcat tgcagaaaca gagttactgg   480
gggctgcagc atccatcgaa gctgcttgct aaaaaagtta gagcaactga agccaagagc   540
15   aaaaccaaaa caagcggatg agacccttgg actttganga acagatcttg gnaactgcta   600
aat   603

           <210> 292
           <211> 900
20   <212> DNA
           <213> Homo sapiens

           <400> 292
gagtcactga ggaagctctt tattccagca gaatccccac cctggacgct aaggagacga   60
25   gcattccact gactgtcaac tgggagccgt gggtttgtgt ggatgactct gtgtgagctg   120
aaacagcctc tgcagggtaa ggagcccaca gactgtatta cagccccctgc tcaccaagcc   180
ccgacggcct tccgcaactc tgccctttgg actacggagg aacaaaataa tcgttcagtt   240
ttctgggcca caaaatacaa gatgggtctg ggttgtacaa ggagcttaca cacggaggca   300
agaaagcgtg caaacagggg cgggaatttt tcaccccctg ggtgagccag tgctcaagac   360
30   atggaaggag gacctgagtc accctcccgg agtccacacg ggtttgtgtt tctggctttt   420
atgaaccatg tccaactcca gcttccgtct tctcctgaga ggaagaagaa tattctatga   480
cgtcaatgat ttttttccct atcacaatat cataaagagg tccaggagca ggcctaagag   540
aaggaccaac aaaagccaaa gtgtctgaga caacataat actgactttt ctttgttggt   600
aacaagtcca tgaaacgtgc accctntnt tctganacac ngtgangcat gaagggangc   660
35   ggcaaaagaa tttgtgggta agacaattgt acccgtgtga catnacgaac attccaccna   720
tggcccacgg ggacaaaaaa tgtgaaaaca aancccncag ggnttccagg ctnaacccgg   780
ganggganggg ggcnggtttc caacttaatg gcccaacctt tnaagaaaac ttgtttgtcc   840
aattnaancc aggggccatn ccctggggnt tcccctttg ggttccaccn ttanccctca   900

40   <210> 293
           <211> 496
           <212> DNA
           <213> Homo sapiens

45   <400> 293
cccctatcga cttccgcgac gtggacatcg gcgagctgag cagcgacgtc atctccaaca   60
tcgagacctt cgatgtcaac gagtttgacc agtacctgcc gcccaacggc cacccgggggg   120
tgccggccac gcacggccag gtcacctaca cgggcagcta cggcatcagc agcaccgcgg   180
ccaccccggc gagcgcgggc cacgtgtgga tgtccaagca gcaggcgccg ccgccacccc   240
50   cgcagcagcc cccacaggcc ccgccggccc cgcaggcgcc cccgcagncg taggcggngc   300
ccccacagca nccgcggca ccccccgnagc agccacaggc gcacactctg accacgctga   360
gcagctagcc gggccanttt ccagctaacg cacatcaaga cggagcaacn tgaagcccnt   420
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accttttcana ctaaag   496

55   <210> 294
           <211> 744
           <212> DNA
           <213> Homo sapiens

60   <400> 294
ggacgctggt gcccatgccg gtgcgcgtca acggctccag caagaacaag ccgcacgtca   60
agcggcccat gaacgccttc atggtgtggg cgcaggcggc gcgcaggaag ctcgcggacc   120

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agtacccgca cttgcacaac gccgagctca gcaagacgct gggcaagctc tggagacttc      180
tgaacgagag cgagaagcgg cccttcgtgg aggaggcgga gcggctgcgc gtgcagcaca      240
agaaggacca cccggattac aagtaccagc cgcggcggag gaagtcggtg aagaacgggc      300
aggcggaggc agaggaggcc acggagcaga cgcacatctc ccccaacgcc atcttcaagg      360
cgctgcaggc cgactcgcca cactcctcct ncggcatgag cgaggtgcac tcccccggcg      420
agcactcggg gcaatcccag ggcccaccga ccccacccac cacccccaaa accgacgtgc      480
agccgggcaa ggctgacctg aagcgagagg ggcgcccctt gccagagggg ggcagacaag      540
cccctatcg actttcgcga cgtggacatn nggcgagctg agcagcgacg ttatnttcaa      600
catttnagaa ccttngattg ttcaacgaag ttttgaccaa gttaccttgc cgccccaacg      660
ggccacccng gggggggccc ggccaccnca ccgggccagg ttnaccttac acngggcagg      720
ttaccgggat ttanccagca cccg                                           744
```

```
        <210> 295
        <211> 759
        <212> DNA
        <213> Homo sapiens


        <400> 295
gtaagagaaa gcaaatctgt acaaaaatac tctggttgca agaaaagcta gggcacactg       60
ttcaactaag agtagtttag ctgntggaaa aataagagca tttaatttta tctaaaaata      120
tgtataaatc ccctcaaaat ggtaatgaat catacacagt acatactaaa aatatttaaa      180
atagagaata ttcctcacag aggacttttt tctttaatta ctgctaaaaa aataattnca      240
aagtccaaac aggcagagag atttagcaca ctgatcacac nattctccat catcctccac      300
gcttgctctg aagagggttt aaaaagtcca gtttctcgtt gatttcgctg ctccatttan      360
ccaaggttgg cctggccact gattggccac aagtgggtaa tgcgcttgga taggtcatgt      420
ttgtgtcttg gaaatttggg tccgagttgc ctttagctta aatgtcttta aggaagaaga      480
agaagaagaa aaacaaanc caaaataaaa aaacnaaaaa aacaccaatg tccaaagggg      540
aattctgggt tnggtccttc tctttcttcg ggttattttt tagggatcat ctcngccatn      600
gncgcccttt gtggggaggc cctcctcaan ggtccaantg gaaacttggg tntatnaccg      660
ggtttgttnc caaatncctg gggggggcttg gtggggtntt nccggggatg nggaaagggg      720
acccccataa nggtgttcgg gcccantngg ggggggtggt                          759
```

```
        <210> 296
        <211> 824
        <212> DNA
        <213> Homo sapiens


        <400> 296
gcggacaccc tgaaggtccc ggtgctcact tggacatgaa ctctcttgat agagcccaag       60
cagccaagaa taaaggcaat aaatatttta aagcaggaaa atatgaacaa gctattcagt      120
gctatactga ggctattagc ttgtgcccta cagagaagaa tgttgacctt tctacatttt      180
atcaaaacag agctgctgcc tttgaacagt tgcaaaaatg gaaagaagtg gcacaagact      240
gtacaaaagc tgttgaactt aatcccaaat atgtgaaagc tctctttaga cgtgcaaaag      300
cccatgagaa gctagacaat aagaaggaat gtttagaaga tgtcactgct gtgtgtatat      360
tagaagggtt ccaaaatcaa caaagcatgc tgttagcccg ataaagttct taaactcctt      420
ggaaaagaga aagccaaaga aaaatataag aatcgtgaac ctctgatgcc atctcccacag      480
tttatcaaat cttacttcag ttctttcacg gatgatatca tttcccaccc atgcttaaag      540
gagaaaaatc tgatgaagat aaagacaagg gaaggggagg ctttaaaagt gaaagaaaat      600
tctggatact aaaggccaa ccagtntatg ggaagaagaa aacttccgat aaaatcttaa      660
gtgaatgctc aaaaagaaat aaatgctgaa ggccaatnct tggcanaagc ntgntantac      720
cnactacctt ttacctggtt attggcatgc catggcagnc caacccanat ttaaataaag      780
tcatcaattt gaaanaaact tatngggaac nttcaancaa tgct                     824
```

```
        <210> 297
        <211> 834
        <212> DNA
        <213> Homo sapiens


        <400> 297
gaatgtaata tttatttggt gaatttacat gtgaggtcat ttacaaaaga aagatacaga       60
cagatgcagc tttcagtgca gtttcaaaca ttttcacaac aggcaatagt ccatgagaat      120
ttggaatgac agtatagaat ggcacatgct tcagtttcct ttgtgtttct ctacccaacc      180
ccaagatgaa agaagggaga agagtagaag aaaatgtcag tgttaatgta aatacagcca      240
```

```
tgcaaataaa aactttttta aagtcagagg tcattcagag atgtagaaca tttctgtatt    300
tggggggttat cagaaggtgc ataatttaaa aacaaaatgc agcggtctca aacttcccat    360
catccaaatc atcttgaatt atattaactg caccaactaa ttagtgacct cctcaatatt    420
ttccaaagat tgactttgaa agggagtcat ttctaatagt ttctaaaaaa gatagcattt    480
gtagacaaat ctttttggtt tcaacagaat taagcaccct taaggggtgt aaaaatgctc    540
ctttactccc aacagtgtaa accataatta taattcgttc ttaaataaac ctctccccat    600
cctgagtatt tcaaaacaaa agacccctgn agaacacacc cttcctccca gaaaaattag    660
ctntaagcca aagggtggnc tataaagtgg naaatgggaa taaatcgtaa gggattctaa    720
gtaaggggggg gagtaaactt aaccctggca gtnccctagg gaanacctgg acctgggagg    780
tagtccttaa anaacaaggt ngcttactnc aaaagccctt taatggtcct caca            834
```

```
        <210> 298
        <211> 800
        <212> DNA
        <213> Homo sapiens


        <400> 298
cccccgggcag cggacaccct gaaggtcccg gtgctcactt ggacatgaac tctcttgata    60
gagcccaagc agccaagaat aaaggcaata aatattttaa agcaggaaaa tatgaacaag    120
ctattcagtg ctatactgag gctattagct tgtgccctac agagaagaat gttgaccttt    180
ctacatttta tcaaaacaga gctgctgcct ttgaacagtt gcaaaaatgg aaagaagtgg    240
cacaagactg tacaaaagct gttgaactta atcccaaata tgtgaaagct ctctttagac    300
gtgcaaaagc ccatgagaag ctagacaata agaaggaatg tttagaagat gtcactgctg    360
tgtgtatatt agaagggttc caaaatcaac aaagcatgct gttagccgat aaagttctta    420
aactccttgg aaaagagaaa gccaaagaaa aatataagaa tcgtgaacct ctgatgccat    480
ctccacagtt tatcaaatct tacttcagtt cttcacgga tgatatcatt tcccagccca    540
tgcttaaagg agagaaatct gatgaagata aagacaagga aggggangct ttagaagtga    600
aaagaaaatt ctggatactt aaanggccaa cagtttatgg nagaagaaaa ctacgataaa    660
atcataagtg aatgctcaaa aaaataaatg ctgaaggcna atacatggna gaagcattgg    720
tctacgacta ccttntacct ggttattggc aatggccatg gcggcccaan cngatttana    780
taaagncatc agtttggaaa                                                 800
```

```
        <210> 299
        <211> 981
        <212> DNA
        <213> Homo sapiens


        <400> 299
gtttatttct tacttgcccg ctacatctgc tatttggatt gtgaaatagt ggtcattagg    60
tctgacatac tggccataaa tattaaatgg cttttgtatt cactaggaaa acattatggt    120
gtttaattgg tgggctcttt tttcagaaaa agctgttcat ttgcaagagg agctcatagc    180
tattaattca aaaaaggagg aactcaatca atctgtaaat cgtgtgaaag aacttgagct    240
tgaattagag tctgtcaaag cccagtcttt ggcaataaca aaacaaaacc atatgctgaa    300
tgaaaaggtt aaagagatga gtgattattc actactaaaa gaagagaaac tggagcttct    360
ggcacaaaat aaaattactta aacaacaact ggaagagagt agaaatgaaa acctgcgtct    420
cctaaaccgc ctagctcagc cggctcctga acttgcagtc tttcagaaag aactacggaa    480
agccgaaaag gctatagtgg ttgagcatga ggagttcgaa agctgcaggc aagctctgca    540
caaacaactg caagacgaaa ttgagcattc tgcacagctg aaggcccaga ttctaggtta    600
caaagcttct gtaaagagtt taactactca ggttgccgat ttaaaattgc aactgaagca    660
aactcagaca gccctagaga atgaagtgta ctgcaatcca aagcagtctg tgatcgatcg    720
ttctgtcaat ggattaataa atggcaatgt ggtgccttgc aatggtgaga taagtgggga    780
tttcttgaac aatccttta aacaggaaaa cgttctagca cgtatgggtg catcaaggat    840
cacaaattat ccaactgcat gggtggaggg tagttcccct gattctgacc ttgagtttgt    900
agcccaatac taaggcaagg gtcaaaagaa ctttaacaag aaggccgacc ccttgggaaa    960
aggctttcaa aagttaccat c                                               981
```

```
        <210> 300
        <211> 728
        <212> DNA
        <213> Homo sapiens


        <400> 300
gtcaaagccc agtctttggc aataacaaaa caaaaccata tgctgaatga aaaggttaaa    60
```

```
         gagatgagtg attattcact actaaaagaa gagaaactgg agcttctggc acaaaataaa    120
         ttacttaaac aacaactgga agagagtaga aatgaaaacc tgcgtctcct aaaccgccta    180
         gctcagccgg ctcctgaact tgcagtcttt cagaaagaac tacggaaagc cgaaaaggct    240
         atagtggttg agcatgagga gttcgaaagc tgcaggcaag ctctgcacaa acaactgcaa    300
     5   gacgaaattg agcattctgc acagctgaag gcccagattc taggttacaa agcttctgta    360
         aagagtttaa ctactcaggt tgccgattta aaattgcaac tgaagcaaac tcagacagcc    420
         ctagagaatg aagtgtactg caatccaaag cagtctgtga tcgatcgttc tgtcaatgga    480
         ttaataaatg gcaatgtggt gccttgcaat ggtgagataa gtggggattt cttgaacaat    540
         cctttttaaac aggaaaacgt tctagcacgt atgggtgcat caaggatcac aaattatnca    600
     10  actgcatggg tgganggtag ttcccctgat tctgaccttg agtttgtagc ccaatactaa    660
         ggcaagggtc aaaagaactt taacnagaag gccnacccct tgggaaaagg ctttcaaaag    720
         ttaccatc                                                             728
```

        <210> 301
     15 <211> 775
        <212> DNA
        <213> Homo sapiens

        <400> 301
     20 ```
         ggattacaca cattttattt gagttttgtc tgatgatagg gaaacattta caaaggagta   60
         aatgttacgt aacttctcac ggtatgtaag ttagaagctg ggcagcaaac atggttacca   120
         agagtcgtct agttcttcat gagaaaagcc tgttaaactt tcgactttgt cactagattg   180
         cagcgtgtcc actagggagc cttcttggac catctttttt gagctcttat ctgccgactc   240
         ctggtcttgc tcctgctgga tgattttcat gtatttctct aaaggatttt cactgtgagc   300
     25 agatttgtct tttatttctt gattactcat ttctaattca ttttccattt ctaattcctt   360
         ttttattttta atcttcagtg attcttcaat catcttcctt tcctgataca gttttttctag   420
         ttctcttcgt tccctttcta aaacttcttg taggttactc tgccttcttt cttctctctg   480
         ccttcgttct ttcacttgct gttcccgtat tttttcttct tcctttttgnt cttcaatttg   540
         tttctgatct acaccttggg tgctgatatg agaggggcac aagcagctgc agcagcgtcc   600
     30 acatgagaca tatnccccgg caggagaaag cccgcccatt tnccaactgg ccttggcatg   660
         ttccctgcag aatccaaaaa gatgattcaa actcctcatt tatnctttaa aagctacttg   720
         nnccacatnt ggaaaaattc acntttgggc ntgaaagttc aagtttggct tcgat   775
```

        <210> 302
     35 <211> 696
        <212> DNA
        <213> Homo sapiens

        <400> 302
     40 ```
         gtttatttct tacttgcccg ctacatctgc tatttggatt gtgaaatagt ggtcattagg   60
         tctgacatac tggccataaa tattaaatgg cttttgtatt cactaggaaa acattatggt   120
         gtttaattgg tgggctcttt tttcagaaaa agctgttcat ttgcaagagg agctcatagc   180
         tattaattca aaaaaggagg aactcaatca atctgtaaat cgtgtgaaag aacttgagct   240
         tgaattagag tctgtcaaag cccagtcttt ggcaataaca aaacaaaacc atatgctgaa   300
     45 tgaaaaggtt aaagagatga gtgattattc actactaaaa gaagagaaac tggagcttct   360
         ggcacaaaat aaattactta aacaacaact ggaagagagt agaaatgaaa acctgcgtct   420
         cctaaaccgc ctagctcagc cggctcctga acttgcagtc tttcagaaag aactacggaa   480
         agccgaaaag gctatagtgg ttgagcatga ggagttcgaa agctgcaggc aagctctgca   540
         caaacaactg caagacgaaa ttgagcattc tgcacagctg aaggcccaga ttctaggtta   600
     50 caaagcttct gtaaagagtt taactactca ngttgccgat ttaaaattgc aactgaagca   660
         aactcagacg ccctagagaa tggagtgtac tgcaat   696
```

        <210> 303
        <211> 771
     55 <212> DNA
        <213> Homo sapiens

        <400> 303
        ```
         ggattacaca cattttattt gagttttgtc tgatgatagg gaaacattta caaaggagta   60
     60 aatgttacgt aacttctcac ggtatgtaag ttanaagctg ggcagcaaac atggttacca   120
         agagtcgtct agttcttcat ganaaaagcc tgttaaactt tcgactttgt cactagattg   180
         cagcgtgtcc actagggagc cttcttggac catctttttt gagctcttat ctgccgactc   240
         ctggtcttgc tcctgctgga tgattttcat gtatttctct aaaggatttt cactgtgagc   300
```

```
        agatttgtct tttatttctt gattactcat ttctaattca tttttccattt ctaattcctt    360
        ttttattttta atcttcagtg attcttcaat catcttcctt tcctgataca gttttttctag   420
        ttctcttcgt tcccttttcta aaacttcttg naggttactc tgccttctttt ccttctctct   480
 5      gccttcggtc tttcacttgc tgntcccgta ttttttctttc ttcctttttgg tcttcaattn   540
        ggttctgatc tacaccttgg gtgctgatat gaaaaggggc acagcaactg cagcagcgtc     600
        cacatganac atatncccng gcagganaaa gccccnccct tttccaactg gcttggcatg     660
        gttccctggc nattcaaaan aggatccaac cccccantat cctttaaaag ctaacttggg     720
        ccccatttgg aaaaatccnc tttttgnncn tggaagttca atttggcttt c              771
```

```
15        <400> 304
        agactattca ccaagtttct ttagacttgg attcattagc agaaagtcct gaatcagatt     60
        ttatgtctgc tgtgaatgag tttgtaatag aagaaaattt gtcgtctcct aatcctataa    120
        gtgatccaca aagcccagaa atgatggtgg aatcacttta ttcatcagtt atcaatgcga    180
        tagacagtag acgaatgcag gatacaaatg tatgtggtaa ggaggatttt ggagatcata    240
20      cttctctgaa tgtccagttg gaaagatgta gagttgttgc ccaagactct cacttcagta    300
        tacaaaccat taaggaagac ctttgccact ttagaacatt tgtacaaaaa gaacagtgtg    360
        acttctcaaa ttcattaaaa tgtacagcag tagaaataag aaacattatt gaaaaagtaa    420
        aatgttctct ggaaataaca ctaaaagaaa aacatcaaaa agaactactg tctttaaaaa    480
        atgaatatga aggtaaactt gacggactaa taaaggaaac tgaagagaat gaaaacaaaa    540
25      ttaaaaaatt gaagggagag ttagtatgcc ttgaggaggt tttacaaaat aaagataatg    600
        aatttgcttt ggttaaacat gaaaaagaag ctgtaatctg cctgcagaat gaaaaggatc    660
        agaagttgnt agagatggaa aatataatgc actctcaaaa ttgtgaaatt aaagaactga    720
        agcagtcacg agaaatagtg ttagaagact taaaaaagct ccatgttgaa aatgatgaga    780
        agttacagtt attgagggca gaacttcagt ccttggagca aagtcatcta aaggaattag    840
30      aggacacact tcaggttagg cacatacaag agtttgagaa ggttatgaca gaccacagag    900
        tttctttgga ggaattaaaa aaggaaaacc aacaaataat taatcaaata caagaatctc    960
        atgctgaaat tatccaggaa aaagaaaaac agttacagga attaaaactc aaggtttctg   1020
        atttgtcaga cacgagatgc aagttagagg ttgaacttgc gttgaaggaa gcagaaactg   1080
        atgaaataaa aattttgctg gaagaaagca gagcccagca gaaggagacc ttgaaatctc   1140
35      ttcttgaaca agagacagaa aatttgagaa cagaaattag taaactcaac caaaagattc   1200
        aggataataa tgaaaattat caggtgggct tagcagagct aagaacttta atgacaattg   1260
        aaaaagatca gtgtatttcc gagttaatta gtagacatga agaagaatct aatatactta   1320
        aagctgaatt aaacaaaagt tacatctttt gcattaccca acctttttgna attgaaaaaa   1380
        accttaaaga accaattant tgactgncga gtaaattggg ntcanaaatg ggtgctcttt   1440
40      gaaggacaaa aggatgaaaa aattnccccc caggaaaaaa aatccnagc                1489
```

```
          <400> 305
        cactctcaaa attgtgaaat taaagaactg aagcagtcac gagaaatagt gttagaagac     60
        ttaaaaaagc tccatgttga aaatgatgag aagttacagt tattgagggc agaacttcag    120
50      tccttggagc aaagtcatct aaaggaatta gaggacacac ttcaggttag gcacatacaa    180
        gagtttgaga aggttatgac agaccacaga gtttctttgg aggaattaaa aaaggaaaac    240
        caacaaataa ttaatcaaat acaagaatct catgctgaaa ttatccagga aaaagaaaaa    300
        cagttacagg aattaaaaact caaggtttct gatttgtcag acacgagatg caagttagag    360
        gttgaacttg cgttgaagga agcagaaact gatgaaataa aaattttgct ggaagaaagc    420
55      agagcccagc agaaggagac cttgaaatct cttcttgaac aagagacaga aaatttgaga    480
        acagaaatta gtaaactcaa ccaaaagatt caggataata atgaaaatta tcaggtgggc    540
        ttagcagagc taagaacttt aatgacaatt gaaaaagatc agtgtatttc cgagttaatt    600
        agtngacatg aagaagaatc taatatactt aaagctgaat tnaacaaaag ttacatcttt    660
        tgcattaccc aaccttttgn aattgaaaaa aaccttaaag aaccaattan ttgactgncg    720
60      agtaaattgg gntcanaaat gggtgctctt tgaaggacaa aaggatgaaa aaattncccc    780
        ccaggaaaaa aaatccnagc                                                 800
```

```
        <211> 858
        <212> DNA
        <213> Homo sapiens

5          <400> 306
        agactattca ccaagtttct ttagacttgg attcattagc agaaagtcct gaatcagatt    60
        ttatgtctgc tgtgaatgag tttgtaatag aagaaaattt gtcgtctcct aatcctataa   120
        gtgatccaca aagcccagaa atgatggtgg aatcacttta ttcatcagtt atcaatgcga   180
        tagacagtag acgaatgcag gatacaaatg tatgtggtaa ggaggatttt ggagatcata   240
10      cttctctgaa tgtccagttg gaaagatgta gagttgttgc ccaagactct cacttcagta   300
        tacaaaccat taaggaagac ctttgccact ttagaacatt tgtacaaaaa gaacagtgtg   360
        acttctcaaa ttcattaaaa tgtacagcag tagaaataag aaacattatt gaaaaagtaa   420
        aatgttctct ggaaataaca ctaaaagaaa aacatcaaaa agaactactg tctttaaaaa   480
        atgaatatga aggtaaactt gacggactaa taaaggaaac tgaagagaat gaaaacaaaa   540
15      ttaaaaaatt gaagggagag ttagtatgcc ttgaggaggt tttacaaaat aaagataatg   600
        aatttgcttt ggttaaacat gaaaaagaag ctgtaatctg cctgcagaat gaaaaggatc   660
        agaagttgnt agagatggaa aatataatgc cctctcaaaa ttgggaaatt naagaactga   720
        agcagtcccg agaaataggg ttagaagact taaaaaagct catgtggaaa atgatgagaa   780
        gttcnggttt tgggggagn acttnagtcc ttgggccaaa gtcttntaan ggaatttgag   840
20      gaccccntcn ggttaggc                                                  858


        <210> 307
        <211> 793
        <212> DNA
25      <213> Homo sapiens


        <400> 307
        ctcttcaagn ngntctaaaa acttancttt ttnttcctga agctttntt gaagttcanc    60
        anctaagctt gaaaaatctc ctntggnana gtcaanggca ggactttttg ctntttgatt   120
30      ctcaanangn ttaacttttt ctaanaactn tttntcaaca acttntntnt ccaatttaaa   180
        ttnttttagg gcngnctgaa tagcttcatn tttttcacaa ttaancttct gaattaactg   240
        ntctntgnct tgctcctggc tgntgaccaa tttttggctg nctttctcaa gggtctggan   300
        aanancttcg natttctctt cttgggggggn aattttttca tcttttggc tttcaanagc   360
        ncncaattnt gaatccnatt tactntgcag ntcaattatt tgntcttta ggnttttttc   420
35      tatttcaaat gcttggttat gcaaagatgt tnctttgttt aattcacctt taagnatatt   480
        anattcttct tcatggnctn cnaattaact cggaaatacn cnganctttt tcaattgnca   540
        ttaaaagttn ttanctctgg gtaacccnc ccnganaaat tttcattatt atcccggaac   600
        cttttgggtg gagtttnacc naaatttccg ntnncnaaat ttttcntggc tctttgggtc   660
        naaaaaaaan aatttcnagg ggcccccttt tggnggggc cttgnttttt tttncncca   720
40      aaaaatttt antttccaaa naggttntgg ntttccttta aaccccaagg gntcaacccn   780
        ttnaccttgn cat                                                       793


        <210> 308
        <211> 584
45      <212> DNA
        <213> Homo sapiens


        <400> 308
        aggaaggcaa gctacagaag gctttagaag atgccttctt ggctattgac gccaaattga    60
50      ccactgaaga agtcattaaa gagctggcac agattgcagg gcgacccact gaggatgaag   120
        atgaaaaaga aaaagtagct gatgaagatg atgtggacaa tgaggaggct gcactgctgc   180
        atgaagaggc taccatgact attgaagagc tgctgacacg ctacgggcag aactgtcaca   240
        agggccctcc ccacagcaaa tctggaggtg ggacaggcga ggaaccaggg tcccagggcc   300
        tcaatgggga ggcaggacct gaggactcaa ctaggaaac tccttcacaa gaaaatggcc   360
55      ccacagccaa ggcctacaca ggcttttcct ccaactcgga acgtgggact gaggcaggcc   420
        aagttggtga gcctggcatt cccactggtg aggctgggcc ttcctgctct tcagcctctg   480
        acaagctgct cgagttgcta agtccaagtt ctttgaggac agtgaggatg agtcagatga   540
        agcggaggaa gaaaaagaag acagtgagga atgcagcgag gaaa                      584


60      <210> 309
        <211> 809
        <212> DNA
        <213> Homo sapiens
```

104

```
        <400> 309
        aggttttggc cttttagtctg aaaaagtgtt gattgaaagt gtacaacaga gagcgggtgc      60
        aagcggccga gggccatgga gccgccaata aaaaagaatg tccttaaata aagttcacag      120
        agtaaaaacc agaaccgcca gtccttccct ccaacacaac agagcacagg cacagaaccg      180
        gtgatgagcc cgaggagcan aggcggctgg gaaggacagc anaggctccc ggctgcagtg      240
        tggagggaga gccctctttg gaatgggcgg agtgaagcca cccagctccc cctgcacacc      300
        tnatacccac tgctaaggct aaaggaaaaa gacaaaactc agtctcaggt ccggagggct      360
        canaaaacag tctaggtggg caggggtctg gatgactgct agtctcgctt ggccttcttc      420
        ttcttgtcgc tgttgccatt ttcttcagcc ccctcagtag agagcacctc ctctagtttt      480
        cgcttgccac tctctggctg gagctctgct gtgtttcggg gcttgaanca aatgatgatg      540
        caggtcatgt tgtcacaccc tgtaccatcc ccaaaagtgt ctggtgccan gcactgatcc      600
        aacagctntt cacaatggat gacaataccg aacttcccat tttcatncgc ttggctgatc      660
        tttgattgaa tgaaatctac aactttctgg gtggtcatca cattccanat ccctccaggc      720
        aatgaccatg aattctnggc ctcagtgaaa ntaacancct tgtgtcagga anggnttgaa      780
        atatttgttn cttaggggggn angttnttg                                      809

        <210> 310
        <211> 626
        <212> DNA
        <213> Homo sapiens

        <400> 310
        tagcggccca gctcaggatg gtggacgacg gctctgggaa ggtggaggtg tggtgcatcc      60
        aggacttaca caggcagccc gtggaccccca agcgtcatgg acagctgtgt gcaggcaact      120
        gctaccttgt gctctacaca taccagaggc tgggccgtgt ccagtacatc ctgtacctat      180
        ggcagggcca ccaggccact gcggatgana ttgaggccct gaacagcaac gctgaggaac      240
        tagatgtcat gtatggtggc gtcctagtac aggagcatgt gaccatgggc agcgagcccc      300
        cccacttcct cgccatcttc cagggccagc tggtgatctt ccaggagaga gctgggcacc      360
        atggaaaggg gcagtcagca tccaccacaa ggctttccca agtgcaaggc actgacagcc      420
        acaacaccag gaccatggag gtgccagccc gtgcctcatc cctcaactcc agtgacatct      480
        tcttgctggt cacaagccag cgtctgctac ctctggtttg ggaagggctg taatggtgat      540
        caacgtgaga tggcacgggt ggtggtcact gtcatttcca ggaagaatga ngaaacngtg      600
        ctnganggtc angaaccttc ccactt                                          626

        <210> 311
        <211> 768
        <212> DNA
        <213> Homo sapiens

        <400> 311
        atgggctgcc tgcttttact gacacncaga ggatgaccaa aagcctntga ggggagtgga      60
        agcagggcct ccccagcatt gtaggtatgt tggggtccag gggatagggg cagtcganag      120
        ggcttgggtt caaaaaaagc ccagctgctt tttctcctgc cgctgcctcc acgtggccat      180
        gctgtaaaat tcctccttgg atttcccaaa natatcttgg aagtcanagt ctgananata      240
        gaactccctg cgggcagggt ccacnccctn tggcaggtcc tcaacagcct ggtgcatcan      300
        ttgttcccgg cgcaggcccc cgttgatcgt ggcnctggtg ctgctgacgg anctgctggt      360
        tctgctgcca gccgacttgg ggcttcgcac caaatcattc tntgagctgt cctgggagcc      420
        cttgagggcc tgcagggcca cggcacctgc cctgccattg cccggccatn tggatagccc      480
        caagttgttg acttctgctg ttatctcaaa anatggttga tgctgcttgc cgggctgcca      540
        ttcaccactt tcttgtggga cnggtggcta gtccacttgt aggggtccca aagtgaanaa      600
        ccatccaatg aaaggtgggg aagctttatg gccctgcttg ancannacca atnggtgtng      660
        cccgggcttc cttcccttgn tngggngnaa gtctttcaag gntacctccc tgggncccaa      720
        ggccaacccg cctttntttc canntnaatt ttgcngcttt tcccccaa                  768

        <210> 312
        <211> 783
        <212> DNA
        <213> Homo sapiens

        <400> 312
        gttatcttgt tgctctggac aagttaaatc catacactct atatactttt cggattcgtt      60
        gttctactga aactttctgg aaatggagca aatggagcaa taaaaaacaa catttaacaa      120
```

```
      cagaagccag tccttcaaag gggcctgata cttggagaga gtggagttct gatggaaaaa      180
      atttaataat ctattggaag cctttaccca ttaatgaagc taatggaaaa atactttcct      240
      acaatgtatc gtgttcatca gatgaggaaa cacagtccct ttctgaaatc cctgatcctc      300
      agcacaaagc agagatacga cttgataaga atgactacat catcagcgta gtggctaaaa      360
  5   attctgtggg ctcatcacca ccttccaaaa tagcgagtat ggaaattcca aatgatgatc      420
      tcaaaataga acaagttgtt gggatgggaa aggggattct cctcacctgg cattacgacc      480
      ccaacatgac ttgcgactac gtcattaagt ggtgtaactc gtctcggtcg gaaccatgcc      540
      ttatggactg gagaaaagtt cctcaaacag cactgaaact gtaatagaat ctgatgagtt      600
      tcgaccaggt ataagatata atttttttcct gtatggatgc agaaatcaag gatatcaatt      660
 10   attacgctcc atgattggat atatagaana attggctccc attggtgccc aaatttactg      720
      gtgaaggata cttntgcaga ttcgattntt agtnaaaatg ggaagacatt cctggggaan      780
      aac                                                                   783


           <210> 313
 15        <211> 861
           <212> DNA
           <213> Homo sapiens


           <400> 313
 20   agggatggct ctgattggat atatttttca ttactgaaca tttctatgaa ctattatata       60
      gttttaatat actatgtatg tacaaaatga attgcatttc attccaaatt tccacagatc      120
      ataaagctca gaaatttagc tgaatcctag cagttaaaat caggattcat acacagagaa      180
      cctaaataga ttttgtcact tgtcactctg gcttttttcc acaacatggt ttttaaaaag      240
      atacaatatg agcttcaaaa aaaattaatt gatccattat ttgcaaatac attacagaat      300
 25   ctcagatgat aaaaaacaaa caaccaacca aaaaaaacaa acaaaaaga catatcttat      360
      tcggacactt aaaattttca agtacttttg ccttaaatat gaaaggtaa aatacatagg      420
      caacctgagg gcagggaaaa tacaagatca cttttttagtt tttccttctg cttttccaag      480
      aaccacaatc actccagaca tcgcttatga gaaacagggg tgggcagagg atgctgtgct      540
      gaaggcaatc aattctgcac agctcaccaa gcaattgctg ccctgcaaca caggttgccc      600
 30   atggattcag atcagtttat gacagttcta agaaacagcc cttgggtact ggtcctgtaa      660
      gaagcattct ctntttagtt ttatatttaa aatgtgagga cgggacaaga natggggggct      720
      gaggaaaaga ctctgagtgg gnggacatnc nccaaagggg caaaataccc tggcttgggg      780
      ngcaacccac ggnntgngct cctcgggggg accaaatcca tcnaactttt ggccgcttac      840
      cccgggtnaa atggttaana g                                                861

 35
           <210> 314
           <211> 658
           <212> DNA
           <213> Homo sapiens
 40
           <400> 314
      gttttgtatg tatttttttt aaataagtga caattctaaa attaatttta gacttaagcc       60
      cttagatgtg gcgtttatga aggcaataca caacaaggtg aatattgtgc ctgtcattgc      120
      aaaagctgac actctcaccc tgaaggaacg ggagcggctg aagaaaagga ttctggatga      180
 45   aattgaagaa cataacatca aaatctatca cttacctgat gcagaatcag atgaagatga      240
      agattttaaa gagcagacta gacttctcaa ggctagcatc ccattctctg tggttggatc      300
      caatcagttg attgaagcca aaggaaagaa ggtcagaggc cgcctctacc cctggggtgt      360
      tgtggaagtg gagaacccag agcacaatga ctttctgaag ctgagaacca tgctcatcac      420
      ccacatgcag gatctccagg aggtgaccca ggaccttcat tatgaaaact ccgttctga      480
 50   gagactcaag agaggcggca ggaaagtgga gaatgaggac atgaataaag accagatctt      540
      gctggaaaaa gaagctgagc tccgccgcat gcaaganatg attgcaagga tgcaggcccc      600
      aaatgcagat gccanatgcn nggccgggga tggcnatggc ggggcttttc gggccacc      658


           <210> 315
 55        <211> 852
           <212> DNA
           <213> Homo sapiens


           <400> 315
 60   aaatatctaaa caatagtgct ttattgataa aaggttagtt taaatggata caaaattgct       60
      gtgtaaaata agtgttttca aaatacattt ctataggtag agactatgtc ttagtaaaag      120
      agcagttatc tattatcaaa agtatctatt tagatttggg tagtaaaacc aaagggggatc      180
      agaagtgtag cagtgtgggt cctccctccc tgcatagctg ttaccaggag gcagcgtgcc      240
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106

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      tgaagtactt tcactcacat atgcgggget tagtcactag caaacttgtt tttcttttt      300
      acagatttc cagcaaagtt attaaatgtc aaactcaaat aatggactcc gcatggatgt      360
      actctgaagt catggaacac cacttcttag ttaccttcac acaataagcc ataacatata     420
      gcttttgget gttcacaatt aaacaacagt gaagggcaaa gttagcaaga acaccagatt      480
5     attttctgta gcacaccttc attaactatt attatttaac tgcctcattt tatggttttt     540
      ctagcccca caaaaatgaa aaaccctgt ctcatcctca aattaagcat tttctccatc       600
      ttcctacaca accattgget cctttcatct ggcaatttct gggggtgaa tttcccactt      660
      cagtanaaat ggatnaaaaa aggcacccgc tggagtgntc ccttagggga ccccaanaaa     720
      aaangggggac ccttaggntt ccggggcnca naaaaacaaa accaggggng ggtttnaatg     780
10    gggcggacct ggcccttac cctttgctac aaaatttgaa aagngttttc ccttttgacc      840
      tggccncccg gg                                                          852


            <210> 316
            <211> 660
15          <212> DNA
            <213> Homo sapiens


            <400> 316
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20    agaagttttg gcacactccg ggaggctgga aaaggaggat ctggggaccc ggatcagccg      120
      cctgaccgg cgggtggagg agatcaaggg tgaggtgtgc aatatgatta gcaagaagta       180
      cagtgaattc ctgcctagca tgcagagcgc gcagggcctg attacccagg tggataagct      240
      atctgaagac attgacctgc tgaaatccag gatagagagt gaggtccgcc gggatcttca      300
      cgtatcaacc ggtgaattta cagacttaaa gcagcagttg gaaagagact cagttgtcct      360
25    aagtttgctt aaacagttgc aggagttttc cactgctatt gaagaatata attgtgcatt      420
      aacagagaag aagtatgtca ctggtgctca gcgtctggaa gaggcacaga aatgcttgaa      480
      gttattaaaa tccagaaaat gctttgattt aaaaatattg aaatctctca gcatggagct      540
      cacaatacag gaaacagaac atactttatc accttggaga agagtggcag aagctgattg      600
      tatggaagtt cccaccatca aaagatacca gccagtttgg gaatctttac cttacaaact      660


30          <210> 317
            <211> 773
            <212> DNA
            <213> Homo sapiens

35
            <400> 317
      gtaaaaagca atatttattg gaaagaaata ttacaggaag tctccttaat tcctgtaagg       60
      ccaaatatgg nggcccattc ctcccttccc ctcctccaca ccctaaaat atctccgatt       120
      tgctcanaaa ttctctaccc tgactcctgg aatctcccaa ttcctcgttc caaagctagg      180
40    gcctgcattt acaatgtata tagctcccag agggctctgg aagcagcatg aaataatgct      240
      gcctgacagt ttgttagcta atcaaaggaa gatggctaga aagtcaatga attgaggtgc      300
      tttacttgac aatttatctt aataaacagt tcttaaacaa agcctcgtac aggccaggag      360
      gtaagacgtt cttctgtaaa gtcaaacttc caagatgtac tggttcacca aaaccaatgg      420
      gcgattcaaa gaagtcttta agggagtnat tatgccaagg gaagaatcca catattcaag      480
45    acatagcttt cttaagaaga tggagctatt taatttttagc aagggcagct gctcttcttt    540
      tctgtgtctg aaacaaggcc gaattaaagc tttacttcac tggaaganaa cgcactgcca      600
      ggggtncttt tncatctggc ccaccgaccc caatttnttg ccaagctggc tttgggagcc      660
      atcatcatca aattccttgg aatggcttcc atttttggca cattanactg gaaacctctt      720
      cttgaaattt nctggtgctt ggctttcttc aaaanaaaag gggcaaatnc ctt             773

50
            <210> 318
            <211> 668
            <212> DNA
            <213> Homo sapiens

55
            <400> 318
      gcccttgag cccgctgtgg ggcccaaagc tgcctgccct ctggactcag agagtgcaga        60
      aggggttgtc cccccggctt ctggaggtgg cagagtgcag aactcacccc ctgtcgggag      120
      gaaaacgctg cctcttacca cggccccgga ggcaggggag gtaacccat cggatagcgg       180
60    ggggcaagag gactctccag ccaaagggct ctccgtaagg ctggagtttg actattctga      240
      ggacaagagt agttgggaca accagcagga aaaccccccct cctaccaaaa agataggcaa     300
      aaagccagtt gccaaaatgc ccctgaggag gccaaagatg aaaaagacac ccgagaaact      360
      tgacaacact cctgcctcac ctcccagatc ccctgctgaa cccaatgaca tccccattgc      420
```

```
taaaggtact tacacctttg atattgacaa gtgggatgac cccaatttta accctttttc    480
ttccacctca aaaatgcagg agtctcccaa actgccccaa caatcataca actttgaccc    540
agacacctgt gatgagtccg ttgacccctt taagacatcc tctaaacccc cagctcacct    600
tctaaatccc cagccttctt ttgagatccc agccagtgct attggaagcc aatggagtgg    660
accgggat                                                              668
```

```
<210> 319
<211> 750
<212> DNA
<213> Homo sapiens
```

```
<400> 319
attantgtcn tntnccnnan tantgnatac nnggaacatc atntngattt gcaanggganc    60
ccagtgggan canaggnnaa atnnaaanng ganccngcac nnnntnctgn agaancngat    120
ccncancgan ggccntanca tgngnggnnc ctnagtnaan nncntttgca tgacnnnntg    180
ctntctcncn anttggcaan tcgtatggat naggcaggcg gagagcgcct gtctattaat    240
tcatgantgc atgaatcgnc ctgccttgct nnngtactcc nntcgcagnt gctccttccg    300
caacgctggc ctggtgggcg gcttgntcct ncggncntt gcctccaacc tgancaatgt    360
cacnnttgcc cctntccagn ntnacntccg ggtgcacctt cnnggcctng tancttttct    420
cctccttctt cgactcggga nnacgcntga ntgcgaacac acattcacac acntttnaat    480
tcttgctgaa nccttanaca gaacgggacc catctnaana atatcttcta taanaggtcn    540
gccaaganca cttttttcacc ggantttaan gnttngtnaa cggcttgcct tnttttttacn    600
aaaaccaagc ttggttganc nccctttggn ggggnannac tnacttttnt ttcttgggga    660
ccnacccctt tattnnantat naaancaatg ggnccttttc cannanttcn ggccaatttt    720
tntaccttna attttccanc acctttacca                                      750
```

```
<210> 320
<211> 694
<212> DNA
<213> Homo sapiens
```

```
<400> 320
gctgcagcgg ctttttgagg aattccggga ctcagatgat gtcctgggtc atatcatgaa    60
gaatatcaca gccaaacgct cacgggcccg aatagtggat aaactcttgg ctctggggct    120
ggtggctgag cggcgggagc tgtacaagaa acggcagaaa aagttggcat cctccatctt    180
gccaaatgga gcggagtccc tgaaagattt ttgccaggaa gatctggaag aagaggaaaa    240
cctgcctgag gaagacagcg aagaggaaga agaaggggggc tcagaagcag aacaagtcca    300
gggtagctta gtcctttcaa atgaaaacct tggtcaaagc ctgcatcagg aaggctttttc    360
tatcccgctc ctatggctcc agaactgcct gatccgagca gctgatgatc gggaagagga    420
tggctgctcc caggccgttc cattggtgcc actcacagag gaaaatgagg aagccatgga    480
aaacgaacag tttcagcagc tgttgcgcaa gctagggggtt cggcccccctg cctctgggca    540
ggaaaccttc tggcgaattc cagccaagct gagtcctacc cagctccgga gggcagcagc    600
ttcttttgag tcaaccagag gaggaacaga aacttgcagc cagaactgca gcctaaagtn    660
cctggagagc aaggctctga tgaagagcac ttgt                                 694
```

```
<210> 321
<211> 798
<212> DNA
<213> Homo sapiens
```

```
<400> 321
ctaatcttac atgtttaata ccaaacacaa agcaaacnca ttcatcatnt anagtactat    60
nttccaaccc tatntcaaat gcaggaatgg gcctnatatct ggtntctana ggatgatcat    120
aggaaacaaa atgaggacag aggcatntgg tntnttntaa aagnggtaca aaactcccgc    180
ctgtcatgtc ataaagctcc ccatntggng ctgcgaccca cctccaanan aaagccaaag    240
gaacagacca ataaaagggg tccgggggngc tttctntatt tcactcactc ctnttatttg    300
ctaaggagct ccaataacca aaanaaatgg ttcctaaaaa aananaacta aatctccana    360
nagctgctgg ggcataccga taaaaactgg ganaaacaaa nactgacagc anaaaagtcc    420
aatactgctg ctgaagtttc tcagcctaaa tccgtgaaan agcctgggat tctactgctc    480
tgtccagtaa naggagcttc tgggtcctgt atgaccctc caactctgac ttgaatgcnc    540
catntaaaaa cgtgtntatt tctacccta gggctttttt agcttttttna gtcatcctca    600
atnattccct caantctggg nattcggttc ttnttttggg attcctggga acctccccaa    660
ctntnggggg ctcttgttcc ctgcccctta attnttnttn cttggtccct cggncgnntn    720
```

```
tcccaacaaa tttgnccgtt ttttggggng gcttcccttt aagngggntt ttttaccnaa      780
caangggtnt ttnctccc                                                    798
```

```
        <210> 322
        <211> 1120
        <212> DNA
        <213> Homo sapiens


        <400> 322
cnagctttnc tcgcgcgcct gcaggtcgac actagtggat ccaaagtttg agacgattgt      60
ggagcaggcc ccgcttgcca ttgaagacct cctgaatgaa ctggacacac aggatgagga     120
ggtggcgtcg gacagtgatg agtcctctga gggtggtgag cgtggagacg cgctgtccca     180
gaagaggtct gagaagccgc ccgcaggctc catctgcagg gctgaacctg aggctggtga     240
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agttgctaac agactgtttg aaatggccag ccgccagagc accccttctc agaacagaaa     360
gcgtctctac aaagtgatcc ggaagctgca ggacctggca ggaggcattt ccctgaaga      420
tgagatccca gagaaggcct gcaggcgcct gcttgaaggg aggcggcaga agaagacgaa     480
gaagcagaag cgtctgctca ggttgcagca ggagagaggg aaaggtgaga aggagccccc     540
gagcccgggc atggagagga agaggagcag gaggaggggt gtaggggccc gaccccgagg     600
cgcgggcaga ggctggtgag canccaggca cagctgagcg ggccctgctt ccgagatcag     660
cccangggcc cgtggccaga aagggctcg ccaganaagg angacacctt cggcccctga      720
ccagtgcccg agcaaaggcg gccaatgtcc aggagccgga gaagaagaag aaacgcaggg     780
agtgatgtgg ccgggccaag gacaggcagg gagggaggcc aggcctcgct tgcnccgcgg     840
gangaggctg accgggctgt tntgtagact caggnccgtg gctccagaac tcctgtgcca     900
ggcgggaggg aagggcggca ctggagagat gggcccatca ttaggggcca gcatcccagg     960
aactggacct ttccccagag cctccgcctg tggctgtgat gaccttgggc cagaaggtca    1020
aactccgaag actgaaactc tgcctgcagc aggactggct gccctgctg tggggggttc     1080
agaaaataaa atgccgcgca gcccttgcca gggaagtgtc                          1120
```

```
        <210> 323
        <211> 695
        <212> DNA
        <213> Homo sapiens


        <400> 323
tttgagacga ttgtggagca ggccccgctt gccattgaag acctcctgaa tgaactggac      60
acacaggatg aggaggtggc gtcggacagt gatgagtcct ctgagggtgg tgagcgtgga     120
gacgcgctgt cccagaagag gtctgagaag ccgccgcag gctccatctg cagggctgaa      180
cctgaggctg gtgaggagca ggcaggtgac gacagggaca gtggcggccc cgttctccag     240
tttgactacg aggcagttgc taacagactg tttgaaatgg ccagccgcca gagcacccct     300
tctcagaaca gaaagcgtct ctacaaagtg atccggaagc tgcaggacct ggcaggaggc     360
attttccctg aagatgagat cccagagaag gcctgcaggc gcctgcttga agggaggcgg     420
cagaagaaga cgaagaagca gaagcgtctg ctcaggttgc agcaggagag agggaaaggt     480
gagaaggagc ccccgagccc gggcatggag aggaagagga gcaggaggag gggtgtaggg     540
gcccgacccc gaggcgcggg cagaggctgg tgagcancca ggcacagctg agcgggccct     600
gcttccgaga tcagcccang gcccgtggc cagaaanggg ctcgccagan aaggangaca      660
ccttcggccc ctgaccagtg cccgagccaa aaggc                               695
```

```
        <210> 324
        <211> 630
        <212> DNA
        <213> Homo sapiens


        <400> 324
gacacttccc tggcaagggc tgcgcggcat tttatttttct gaacccccca cagcaggggc     60
agccagtcct gctgcaggca gagtttcagt cttcggagtt tgaccttctg gcccaaggtc     120
atcacagcca caggcggagg ctctggggaa aggtccagtt cctgggatgc tggcccctaa     180
tgatgggccc atctctccag tgccgccctt ccctcccgcc tggcacagga gttctggagc     240
cacggncctg agtctacana acagcccggt cagcctcntc ccgcggngca agcgaggcct     300
ggcctccctc cctgcctgtc cttggcccgg ccacatcact ccctgcgttt cttcttcttc     360
tccggctcct ggacattggc cgcctttgct cgggcactgg tcaggggccg aggtgtcctc     420
cttcttctgg cgagccccctc tttggccacg ccccctgggc tgatctcgga gcagggcccg     480
ctcanctgtg cctggctgtt caccaaacct nttgcccgcg cctcgggggt cgggcccccta    540
```

```
acaccccttc ctcctgggta cctntttcct cttcatgccc cggggcttcg ggggggcctn      600
ctttttnacc cttttncctt ttttttccctg                                      630
```

        <210> 325
        <211> 675
        <212> DNA
        <213> Homo sapiens

        <400> 325
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gtagtgaaga aaccctgccc aaggccaacc ccgactccct ggagcctgct ggcccctcat      60
ctccagcctc tgtcactgtc actgttggtg atgagggggc tgacacccct gtaggggcta      120
caccactcat tggggatgaa tctgagaatc ttgagggaga tggggacctc cgtgggggcc      180
ggatcctgct gggccatgcc acaaagtcat tcccctcttc ccccagcaag gggggttcct      240
gtcctagccg ggccaagatg tcaatgacag gggcgggaaa atcacctcca tctgtccaga      300
gtttggctat gaggctactg agtatgccag gagcccaggg agctgcagca gcagggtctg      360
aacccccctcc agccaccacg agcccagagg gacagcccaa ggtccaccga gcccgcaaaa      420
ccatgtccaa accaggaaat ggacaggtga gtgggatggg agagatggga taatcaacca      480
taaacctttg gtgagctctt ttacagtttc acttaaggct tctactccat ttactcattc      540
acatatttaa gcaaggggct gctgtgtgtc aaatattaag gcttgtgctt gatctgtgga      600
accaacagac aggtttcctt cttnttcctg caagtttac atttctttgg ggtggtggaa      660
aaagtttggg attgt                                                       675
```

        <210> 326
        <211> 866
        <212> DNA
        <213> Homo sapiens

        <400> 326
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gcggctcctt ccagagcagg gctaactcct acgcagtgtg cccagagtca gcctgttttt      60
tttcaatatc ttcacgtcat ccaatcttct tttcctttaa aaacctactt gtgggctggt      120
tgtggtggct tgcacctgta atcccagcac tttgcgaggt caaggcagga agattgctga      180
agcccagcag tttgagacca gcctgggcaa catagtgaaa ctgtcttcaa aaacaaaaca      240
aaacaaacaa aaaaaaccct acttataact gctgctaatc agagtgtatt ttcacggcaa      300
cttgaatctt tgctcctaaa ggctgtcctc aaaacctgac caaatatact ttacttaatg      360
ttaagtttgc ctcagttttt tcctttaggt caacaatagg tatgacccaa gaaccctaga      420
acttggtcat aaagcttctg gtgcccttgn cacttccctc ctctattatt tctgnggccc      480
tcatctcctt tcccactggg attcccagga aaaactttac aaatagagca gtgacagatg      540
agttccccaa gggcttgctt tgaggtanaa aggaanagtg gtttgaaatt cccttacctt      600
gncattatca taagaagtaa ttaagacatt aactatntaa ttgactcttt aacatcaact      660
tttaccaccc aanaatgtaa acctgcagga aganangacc tgttgttggt tccaanatca      720
agcncagnct aatttttgac acacagcaan cccttgnttt aaatatgggn attgagtaaa      780
tggagtaaaa acctttaagn gaaactgtaa aaaanctcnc caaanggtta tngggtggat      840
attccatttt ttccatccca ttacct                                           866
```

        <210> 327
        <211> 884
        <212> DNA
        <213> Homo sapiens

        <400> 327
```
agaggattga ggaagacaac ttaacctacc aacatcttct gcctgaatct cctgagcctt      60
cagcctctca tgcgctctct gattatgaaa catctgaaaa gtccttcttc tcacgagacc      120
agaagcaaga taatgagaca gagaagactt cagttatggt gaacagtttt tctcaagact      180
tactaatgga acacatacag gaaattcgaa ctttgagaaa gcgtttagaa gaatctatta      240
aaacaaatga gaagctacgg aaacagttgg aacggcaagg atctgaattt gttcaaggtt      300
ctacaagcat ttttgcttct ggttcagagc ttcatagttc tctaacatca gaaattcatt      360
tcttgaggaa gcagaaccag gccctcaatg caatgctcat taaaggatcc agagataaac      420
agaaggagaa tgacaaatta cgagagtccc tctccaggaa gaccgtgagc ctggagcacc      480
ttcagcggga gtatgccagc cgtgaaggaa gaaaatgaaa ggctgcagaa agaaggcagc      540
gagaaggaga gaccaaccag cagctgatcc angangtccg ctgcagcggc cagganctga      600
canggtgcag gaggagctga agttgaggca gcagctgctn tacagaatga caagctttg      660
cagtcttnc gagtggagct gaaggcgtat gaaaagctgg gntgaaaanc ncaggaaact      720
tgaaanaggc gtcngganaa aggcttgaaa ggggcaggat cctttnangg acctggcnca      780
```
                                        110
```

```
gccttctggt ngggaaaacc aggctnttgg gcttggnact ntgaaagggg cctttgaaac    840
ccgcngccct tttggaaaac aaggtttaan ggacaacttg ggca                     884
```

        <210> 328
        <211> 1005
        <212> DNA
        <213> Homo sapiens

        <400> 328
```
cggnggggga agcacaagct ttattggctg aaagttcttc tcaggagcct ggtctgctgg     60
gactgcatgt tcctggatgg gctcccccag gcctaagctc caggtttcct ctggccttcc    120
gaaggatttt gtgggttacg accaattgat caaagatgac tttttcctgg cgcttgctca    180
gctgcaaaag cttcatggtg ttttgcaact tctttttcttg ttcaaacaat tttttatgta    240
gtttggtgac ctctgccttc atttctccaa tctgctcaca gtgaaggggg cactggccat    300
cctcggggag tgagactctc canagaagct tcagccgcct gtaggcctct tccagggtca    360
gcttggccgt gctcacactg ctcacaaact tgctcagtgg tgctgggtgt ggacccttttg    420
ttcccagctc ttgacttgtg gagctgggag cctcttgggt ttgaatgtca tttcaacaag    480
gagcctctgc cctggctgat ctgtttgagc agggcctcat agtcctcaat cangcccang    540
acatggcggc attcttgctg gcccacaggt ggtggncant nccaggcggg acacacaccg    600
gagtgctaat tggccgaact gccactgtcc angaanangg agtccgtgtc attcccaaaa    660
aatggaggag ctctgaaact gantttgggg tcacnggctg gngggaatcn aaccgnatca    720
aanngaatnt cctttccatg ggaatatttg gcacccatcc tgtttgtcaa ggctgaangg    780
gcaccctaag ggatngacac cggtttggga aaagccaaan nganggggtcn ttcttgggcc    840
ttttttttggc cccctttgcc aaaatttttnnt tgaancctnt ttcanaaaag gcnnngggtt    900
ncaagcnccc ttttattngn aaggccaaaa gccnganttn cntaaggagg nttggcnggn    960
cctaaaggan ctgcccnttc aactttttncc anccctttaa antct                   1005
```


        <210> 329
        <211> 924
        <212> DNA
        <213> Homo sapiens

        <400> 329
```
gagaacctca aacagcagct ggaggaacag gaatacaagc tgcagaagga gcagaatttg     60
aacatgcaac ttttcagtga gatccataat ctgcagaata agttcagaga tctctcacct    120
cccagatacg attcattagt tcagtcccaa gccagggagc tctcccttca acggcagcag    180
attaaggatg gccatggcat ctgtgtcatc tcccgtcaac acatgaacac catgattaag    240
gcatttgagg agttgctgca ggccagtgat gtggattact gtgtggccga gggtttccag    300
gaacagctga atcaatgtgc tgagctgctg gagaaattgg aaaagctatt tctcaacgga    360
aaatcagttg gagtggaaat gaacacccag aatgaactga tggagaggat tgaggaagac    420
aacttaacct accaacatct tctgcctgaa tctcctgagc cttcagcctc tcatgcgctc    480
tctgattatg aaacatctga aaagtccttc ttctcacgag accagaagcc aagataatga    540
gacagagaag acttcagtta tggtgaacag tttttctcaa gacttactaa tggaacacat    600
acaggaaatt cgaactttga gaaacgttta gaagaatcta ttnaaacaaa tgaaaagctn    660
cggaaaccag ttggaacggc aaggatcttg aatttgttca aggttctaca aacantttttg    720
gnttttggtt canagcttta ttagttctnt aacattaaaa aaatcanttt ttggnggaan    780
ccanaaccag gnccctcaat ggaatggctt anttaaaggg atncccgaga tttaacccgg    840
aagggggaat ggcccaaatt tcccagaggt nccctttttcc aagnaaaaac ccgggaancc    900
tgggaacanc ctttannggg ggaa                                           924
```


        <210> 330
        <211> 960
        <212> DNA
        <213> Homo sapiens

        <400> 330
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gggggaagca caagctttat tggctgaaag ttcttctcag gagcctggtc tgctgggact     60
gcatgttcct ggatgggctc ccccaggcct aagctccagg tttcctctgg ccttccgaag    120
gattttgtgg gttacgacca attgatcaaa gatgactttt tcctggcgct tgctcagctg    180
caaaagcttc atggtgtttt gcaacttctt cttgttgtca aacaatttttt tatgtagttt    240
ggtgacctct gccttcattt ctccaatctg ctcacagtga ggggggcact ggccatcctc    300
ggggagtgag actctccaga gaagcttcag ccgctgtagg cctcttcag ggtcagcttg    360
gccgtgctca cactgctcac aaacttgctc aatggtgctg ggtgtggacc ctttgttccc    420
```

```
agctcttgac ttgtggagct gggagcctct tgggtttgaa tgtcatttca acaaggagcc    480
tctgtccctg gctgatctgt ttgagcaggg cctcatagtc ctcaatcang cccaagacat    540
ggcggccatt cttgctggcc cacaaggtgg tggccaatga ccaagcngga cacacacnga    600
gtgctagttg ccgaactgcc actgtcncaa gaanagggaa tccgtgtcat ttccaaaaaa    660
gtggaggagt ctctgaaact gaatttnggn gtcactggcc tgggaggaat caaacngatc    720
aaatgaanta tcccttt cat ggggganattt gcancatcnn gtttgtcang cttaaagggc    780
ncctaaggga tggacaccgg ttgggaaaac ccaanngang nctcnttctt ggcctttttt    840
gncccccttgc aantgttctt gaacctgttt tgaaaaggcg nnggttcnaa ccccntttaa    900
ntgcaacnca aaccngattt cattaagagg ttgcaggccc tnaaggaact tgccttcaac    960
```

        <210> 331
        <211> 666
        <212> DNA
        <213> Homo sapiens

        <400> 331
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cggggtgcct gggtggcagg ctgccctcct ttccctccct ggtattacca acagagaggc     60
taagaagtcc cgcttgccaa tcctaataaa accatcccgg tcattaggaa atatgtatcg    120
tctccctgcc acccaggagg tggtgacgca gctgcagagc cagatcttgg agctgcaggg    180
ggagctgaag gagtttaaaa cttgtaataa gcaacttcac caaaagttaa ttctggctga    240
agcagtgatg gaggggaggc caacgcccga caaaacgttg ctgaatgctc agcccctgt     300
gggagcagcc taccaggaca gcccaggaga gcagaaagga attaaaacca catcttctgt    360
ctggagagac aaggaaatgg acagtgatca gcaaagaagc tacgagattg actctgagat    420
ttgcccacct gatgaccttg ccagcttgcc atcatgcaaa gaaaatcctg aagatgttct    480
gagcccaact tcagtagcta cttacctgag ttccaagagt cagccttctg ctaaagtcag    540
tgtgatgggg actgatcagt cagagagcat taatacctca aatgagacag aatacttaaa    600
acagaaaatn catgacttgg gaaactggaa cttggnaagg ctaccanaaa tttcataatt    660
tcaacn                                                                666
```

        <210> 332
        <211> 847
        <212> DNA
        <213> Homo sapiens

        <400> 332
```
gaaatgaaat gaatcattta atgagaatct tcaaactgtg gcactggctg agtactaagc     60
aaatccaggg gaagacgtga agcccaccaa ggcgcacagc ctcaactccg gtgcctgccc    120
ctgatctgaa atacaacatc caagagctcg aggcctttt accaccgtt tgtggagcac    180
ctgcaccttt ctgacaacaa ctctcaagcc aactttcaga gagaaacat gaagggaaaa    240
aatagatttc ctttggccag acagctcttt cttcctcaat aaataggaac cacacttgga    300
acaaagagac agcgtgagct cggtggggga agcacaagct ttattggctg aaagttcttc    360
tcaggagcct ggtctgctgg gactgcatgt tcctggatgg gctcccccag gcctaagctc    420
caggtttcct ctggccttcc gaaggatttt gtgggttacg accaattgat caaagatgac    480
ttttcctgg cgcttgctca gctgcaaaag cttcatggng ttttgcaact tcttttcttg    540
ttcaaacaat tttttatgta gtttggngac ctctgccttc atttctccaa tctgctcaca    600
angaaggggg cactggccat cctnggggag tgagactctc canaanaagc ttcancccgc    660
tgtanggcct ntttncaggg tcagttgggc cggctcacac tgnttacaaa cttgcttaag    720
nggngctngg gngngggccc tttggttcca actnttgact ttgnggaact ggganccctt    780
ttgggggttga atgnccattt taacaangga gccntttncc ctggctgaat ntgttgaaca    840
ggggcct                                                               847
```

        <210> 333
        <211> 661
        <212> DNA
        <213> Homo sapiens

        <400> 333
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gatgcctgga tttttcaaaa gcagattcag gtgttcattt atgtgttatt gatgactcca     60
atgagcatat gcttactgta tgggactggc agaggaaagc aaaaggagca gaaataaaga    120
caacaaatga agttgttttg gctgtggagt ttcacccaac agatgcaaat accataatta    180
catgcggtaa atctcatatt ttcttctgga cctggagcgg caattcacta acaagaaaac    240
agggaatttt tgggaaatat gaaaagccaa aatttgtgca gtgtttagca ttcttgggga    300
atggagatgt tcttactgga gactcaggtg gagtcatgct tatatggagc aaaactactg    360
```
                                  112

```
        tagagcccac acctgggaaa ggacctaaag gtgtatatca aatcagcaaa caaatcaaag    420
        ctcatgatgg cagtgtgttc acactttgtc agatgagaaa tgggatgtta ttaactggag    480
        gagggaaaga cagaaaaata attctgtggg atcatgatct gaatcctgaa agagaaatag    540
        agggtcctga tcagtatggc acaatcagag ctgtagcaga aggaaagggc agatcaattt    600
   5    ttagtaggcc ccatcaccga aactttattt tacganggaa ccattttaat gatgggcttc    660
        c                                                                    661


            <210> 334
            <211> 798
  10        <212> DNA
            <213> Homo sapiens


            <400> 334
        agaaagagga aacattttga ttattttatt ttttaatctt caaaattttc tgccatgaga     60
  15    caggaatgca tgatagcaat ggctcaacat cttcacatga aacacttgga ttcattttca    120
        ttcacaagtt tttctaaaaa catctacaat ttcataaccc cacccacttc caaccattat    180
        cacagattta actgaccatt aaacagtagt tgccagcatt aaatagctgg aacgcttcct    240
        gcgtattagt agtgtctttt gaaactacca ccgaagagta tcatgattat aaatctcatt    300
        gtacatggca accccaaagg tgactgatgt cctcaaataa actccctgct gatcactgag    360
  20    agctgtattc cccaggtact aaagaaatg ctctttcttc tccaagaact gcctgttcat    420
        gtcagtatat ttcttgcagg gagtatagca catgctgatc tgatgatgta ataatcattg    480
        ctaacagaca gatatatatg cctgatactt actggcgcgc tccgataagt atgtacagaa    540
        catacatact gaagaaagat ggggtgcttg gaatctnttn ttnttttgaa aanaactatt    600
        ttganggttt ttaacaggtg nnaaccaaag ggaaggattt ccgatncctt ttccccatag    660
  25    gagatntccc tgngtatttt taacgggggg catatttttt tatttanana aacccacaag    720
        gggttccctt ggccctttaa acaaacccca aacctttcat acaggggggg gaantaaang    780
        gtggaaaang gccttggg                                                  798


            <210> 335
  30        <211> 852
            <212> DNA
            <213> Homo sapiens


            <400> 335
  35    ggatgttatt aactggagga gggaaagaca gaaaaataat tctgtgggat catgatctga     60
        atcctgaaag agaaatagag gttcctgatc agtatggcac aatcagagct gtagcagaag    120
        gaaaggcaga tcaattttta gtaggcacat cacgaaactt tattttacga ggaacattta    180
        atgatggctt ccaaatagaa gtacagggtc atacagatga gctttggggt cttgccacac    240
        atcccttcaa agatttgctc ttgacatgtg ctcaggacag gcaggtgtgc ctgtggaact    300
  40    caatggaaca cangctggaa tggaccaggc tggtagatga accaggacac tgtgcagatt    360
        ttcatccaag tggcacagtg gtggccatag gaacgcactc aggcaggtgg tttgttctgg    420
        atgcagaaac cagagatcta gtttctatcc acacagacgg gaatgaacag ctctctgtga    480
        tgcgctactc aatagatggt accttcctgg ctgtaggatc tcatgacaac tttatttacc    540
        tctatgtagt ctctgaaaat ggaagaaaat ntagcagata tggaaggngc actggacatt    600
  45    ccagctacat cacacaccnt tgacttggtc cccaaacaac aagtatataa tgtctaactc    660
        gggaaactat taaaatattg tctgggacat tccaaatggn ttgcaaacta atcanggaat    720
        tcgatcgggt ttgtaangga cattgattgg gccnacatta taccttgtgg gcttaggatt    780
        tcnaagtntt ttggngtctt ggccaaaaag gatcttgatn gggacaaaat ttnaatggcc    840
        cttggggccn aa                                                        852
  50

            <210> 336
            <211> 791
            <212> DNA
            <213> Homo sapiens
  55

            <400> 336
        acattttgat tattttattt tttaatcttc aaaattttct gccatgagac aggaatgcat     60
        gatagcaatg gctcaacatc ttcacatgaa acacttggat tcattttcat tcacaagtt    120
        ttctaaaaac atctacaatt tcataacccc acccacttcc aaccattatc acagatttaa    180
  60    ctgaccatta aacagtagtt gccagcatta aatagctgga acgcttcctg cgtattagta    240
        gtgtcttttg aaactaccac cgaagagtat catgattata aatctcattg tacatggcaa    300
        ccccaaaggt gactgatgtc ctcaaataaa ctccctgctg atcactgaga gctgtattcc    360
        ccaggtactt aaagaaatgc tctttcttct ccaagaactg cctgttcatg tcagtatatg    420
```

113

```
tcttgcaggg agtatagcac atgctgatct gatgatgtaa taatcattgc taacagacag    480
atatatatgc ctgatactta ctggcgcgct ccgataagta tgtcagaaca tacatactga    540
agaaagatgg gttgcttgga atctctcttc ttttgaagag aactattttg agggttttta    600
acagttgtna accaaaggga agatntncng atcctattcn catagagatc tcactgagtn    660
tttcaacgtg gngcatatct tcttatctaa aaaaacacac agtgttttca cttngccctt    720
taaacacacc cacaccctt cattacagng ggngaaaatn aatggtggna aatgtnccctt    780
gggaagtcac t                                                        791
```

<210> 337
<211> 659
<212> DNA
<213> Homo sapiens

<400> 337
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tgtttttgca gcctctacaa ccccacgtca gagtgtggga ttctgttact ctatccacac     60
tgcagattat tggacttggc acttttgagc gtggagtagg atgcctggat ttttcaaaag    120
cagattcagg tgttcattta tgtgttattg atgactccaa tgagcatatg cttactgtat    180
gggactggca gaggaaagca aaaggagcag aaataaagac aacaaatgaa gttgttttgg    240
ctgtggagtt tcacccaaca gatgcaaata ccataattac atgcggtaaa tctcatattt    300
tcttctggac ctggagcggc aattcactaa caagaaaaca gggaattttt gggaaatatg    360
aaaagccaaa atttgtgcag tgtttagcat tcttggggaa tggagatgtt cttactggag    420
actcaggtgg agtcatgctt atatggagca aaactactgt agagcccaca cctgggaaag    480
gacctaaagg tgtatatcaa atcagcaaac aaatcaaagc tcatgatggc agtgtgttca    540
cactttgtca gatgagaaat gggatgttat taactggagg anggaaagac agaaaaataa    600
ttctgtggga tcatgatctg aatcctgaaa gaagaaatag aggntcctgg atcagtatg    659
```

<210> 338
<211> 829
<212> DNA
<213> Homo sapiens

<400> 338
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aacatttgga ttattttatt ttttaatctt caaaattttc tgccatgaga caggaatgca     60
tgatagcaat ggctcaacat cttcacatga aacacttgga ttcattttca ttcacaagtt    120
tttctaaaaa catctacaat ttcataaccc cacccacttc caaccattat cacagattta    180
actgaccatt aaacagtagt tgccagcatt aaatagctgg aacgcttcct gcgtattagt    240
agtgtctttt gaaactacca ccgaagagta tcatgattat aaatctcatt gtacatggca    300
accccaaagg tgactgatgt cctcaaataa actccctgct gatcactgag agctgtattc    360
cccaggtact taaagaaatg ctctttcttc tccaagaact gcctgttcat gtcagtatat    420
ttcttgcagg gagtatagca catgctgatc tgatgatgta ataatcattg ctaacagaca    480
gatatatatg cctgatactt actggcgcgc tccgataagt atgtacaaga acatacatac    540
tgaagaaaga tgggttncctt ggaatctctc ttcttttgga aganaactat tttgaggntt    600
tttaacagtg gtaaaccaaa aggaaaggat atncagatnc cttntccaca tngagatcta    660
cactgagtat tttcaacggn ggtgcatatt ttcttatcta gagatacaca caggggtttc    720
canttgcccc tttacanacn cccannacct tttcatacaa gngggngaat ttnaatgttg    780
taaangtccc tgggaggttc actggagttt tntttttccc aaatgagga                829
```

<210> 339
<211> 753
<212> DNA
<213> Homo sapiens

<400> 339
```
gcctggctag gagcgccgac cgcagggcct ctacggacct tactagaaaa atgaaacctg     60
atgaaactcc tatgtttgac ccaagtctac tcaaagaagt ggactggagt cagaatacag    120
ctacattttc tccagccatt tccccaacac atcctggaga aggcttggtt ttgaggcctc    180
tttgtactgc tgacttaaat agaggttttt ttaaggtatt gggtcagcta acagagactg    240
gagttgtcag ccctgaacaa tttatgaaat cttttgagca tatgaagaaa tctggggatt    300
attatgttac agttgtagaa gatgtgactc taggacagat tgttgctacg gcaactctga    360
ttatagaaca taaattcatc cattcctgtg ctaagagagg aagagtagaa gatgttgttg    420
ttagtgatga atgcagagga aagcagcttg gcaaattgtt attatcaacc cttactttgc    480
taagcaagaa actgaactgt tacaagatta cccttgaatg tctaccacaa aatgttggtt    540
tctataaaaa gtttggatat actgtatctg aagaaacta catgtgtcgg aggtttctaa    600
```

```
      agtaaaaatc ttgtaagaaa attgtcaaan gggctaatgc tacaangcta cactcttttc      660
      taaagttgaa atatttttgt tgcttgcagc cgagtgacct ncatnaatac ctgggctgaa      720
      aaaacantgg taatactaca agtnttatgg cca                                   753
```

```
          <210> 340
          <211> 879
          <212> DNA
          <213> Homo sapiens
```

```
          <400> 340
      agaaccatta aaatatttaa ttcttcaact ttaaaaaatt aaataaaatc aaaataggat       60
      aatgaccaga atagtgccat tataatcaca tcaaaaagct tccattaaca ttttatgaat      120
      ttggcaatct agtacaatac attaagtatt gtgtttcact caattttgtg atactccatt      180
      tttgaaaaaa cttagagg`ct tcagataccc atgaaaagaa aaaatcagg gtagaaacac       240
      ataggctgag gnttgctaat tcactgntta cagaggacct tagatgtccc actataattg      300
      ctcttaggta tttttaacaa atgaatagtc ataattcaca gaaaagacaa gtggtctttt      360
      tatctacata gactatacta tataaacttt cagtaaaaca tttaaattgt tttactttta      420
      atcttgtcaa gtaattttca tttcttctac ttcaaaaggt tgaccaggtt gtttgcctgt      480
      attgggatca acgaatgttg gactatacta tgtttagtta taataactaa tttatccacc      540
      ctgacttaat atgtgggaaa caatacaccc ctaagtgtat tgagatgttt ctttgaaaca      600
      aaaatattta attttatgca tgtgataaac agccttattc aatgntactt tttttnaatg      660
      agccacccag atgcngacat ntacttccta ttacccatac tcttgactcc caagaaaggg      720
      agccaacttt tagaaaaata ccatgcagga aaggatcagg ttaaaatntt ttccttggtn      780
      aaaaacatcc ccttntanat tcattggaaa ctaaatcccg cnggtcccccc cncccaagaa      840
      tctttaaagg catttttcctg gggattccaa ggtttttccg                           879
```

```
          <210> 341
          <211> 1551
          <212> DNA
          <213> Homo sapiens
```

```
          <400> 341
      gggtggcagc atcgctgctt gctcctttat tgcctgaggg aataaaagaa gaagaagaga        60
      gatggagaag aaaagtaatt tgtaaagagg agccagtttc agaagtaaaa gaaacaagta      120
      caacagtaga agaagcaaca acaatagtaa agccacagga aattatgttg gacaatatag      180
      aagacccttc tcaggaggat ctttgcagtg ttgtccaatc tggagaaagt gaggaggaag      240
      aggaacaaga tacccttgaa ctggagctag ttttggaaag gaaaaaagca gagttgcgag      300
      ccttggagga aggagatggt agtgtgtcag ggtctagtcc acgttctgat atcagccagc      360
      cagcatctca agatggaatg cgtaggctta tgtctaaaag aggaaaatgg aagatgtttg      420
      ttcgagctac cagtccagaa tctaccagta ggagttctag taaaactgga cgagatactc      480
      cagaaaatgg agaaactgca attggtgctg aaaattcaga aaaaatagat gagaattcag      540
      ataaagagat ggaagtagaa gaatcttcag agaaaataaa agtacagaca acaccaaaag      600
      tagaagaaga acaggatttg aaatttcaga ttggagaact ggcaaatacc ctgccaagta      660
      aattccgagt ttctagcatt aatagacaat ccatcttcaa ctttcatgtg ctgctcttcc      720
      agactggaac tcgaattgca actggcggga aagggctctt aatggaaact accttaaacg      780
      aaaacttcag gatgcagcag aacaactaaa acagtatgaa ataaacgcca ctcctaaagg      840
      ctggtcctgc cactgggaca ggacctctgg aagcaactac tcctgattaa cctcggtgaa      900
      gttaaggaaa agttcgtggc tgaagatgtg aatgaaagaa ctggcaaata ccctgacaag      960
      taaattcgag ttttttaggca ttaatagaca atccatctcc aactttcatg tgctgctctt     1020
      acagactgag actcgaattg cagactggcg ggaaggggct cttaatggaa actaccttaa     1080
      acgaaaactt caggatgcag cagaacaact aaaacagtat gaaataaacg ccactcctaa     1140
      aggctggtcc tgccactggg acaggacctc tggaagcaac tactcctgat taacctcggt     1200
      gaagttaagg aaaacttcgt ggctgaagat gtgaatgaag aacaagatta ctatcctctg     1260
      ccagcaggtc agatgaaaac atttctttat atatttggct tttcttgatt tttttttcgt     1320
      tatttgaaat ctttgctctt ttatttttca gctcccagat cctctccctc tctttagctt     1380
      tcactgtgtt tgatatcaag aatatgaaat gtgaattcca cggtccaaga ggggaagagt     1440
      caccttttcac aaacttcgtt gttctcttct ttggaaggga aattagtgtt ctaggcgatt     1500
      gagtcccttc attaatgaaa cttgaaaccc tgttatgcat tggcaaatca c               1551
```

```
          <210> 342
          <211> 932
          <212> DNA
          <213> Homo sapiens
```

```
        <400> 342
        gggtggcagc atcgctgctt gctcctttat tgcctgaggg aataaaagaa gaagaagaga      60
        gatggagaag aaaagtaatt tgtaaagagg agccagtttc agaagtaaaa gaaacaagta     120
   5    caacagtaga agaagcaaca acaatagtaa agccacagga aattatgttg gacaatatag     180
        aagacccttc tcaggaggat ctttgcagtg ttgtccaatc tggagaaagt gaggaggaag     240
        aggaacaaga taccctt gaa ctggagctag ttttggaaag gaaaaaagca gagttgcgag     300
        ccttggagga aggagatggt agtgtgtcag ggtctagtcc acgttctgat atcagccagc     360
        cagcatctca agatggaatg cgtaggctta tgtctaaaag aggaaaatgg aagatgtttg     420
  10    ttcgagctac cagtccagaa tctaccagta ggagttctag taaaactgga cgagatactc     480
        cagaaaatgg agaaactgca attggtgctg aaaattcaga aaaaatagat gagaattcag     540
        ataaagagat ggaagtagaa gaatcttcag agaaaataaa agtacagaca acaccaaaag     600
        tnnaagaaga acaggatttg aaatttcaga ttggagaact ggcaaatacc ctgccaagta     660
        aattccgagt ttctagcatt aatagacaat ncatcttcaa ctttcatgtg ctgctcttcc     720
  15    agactggaac tcgaattgca actggcngga aagggctntt tatggnaact accttaacca     780
        aaactttagg gtgccc.cnga acaactnaac cgtttgaaat aacnccctcc taaagggtgg     840
        tccttgccct ggganaggac ctttggaacc aactcctcct gattaacctc ggggaaatta     900
        aggnaaaatt cnnggnttta aaatgtgaat tg                                    932
```

```
  20        <210> 343
            <211> 938
            <212> DNA
            <213> Homo sapiens
```

```
  25        <400> 343
        gtgatttgcc aatgcataac agggtttcaa gtttcattaa tgaagggact caatcgccta      60
        gaacactaat ttcccttcca aagaagagaa caacgaagtt tgtgaaaggt gactcttccc     120
        ctcttggacc gtggaattca catttcatat tcttgatatc aaacacagtg aaagctaaag     180
        agagggagag gatctgggag ctgaaaaata aaagagcaaa gatttcaaat aacgaaaaaa     240
  30    aaatcaagaa aagccaaata tataaagaaa tgttttcatc tgacctgctg gcagaggata     300
        gtaatcttgt tcttcattca catcttcagc cacgaagttt tccttaactt caccgaggtt     360
        aatcaggagt agttgcttcc agaggtcctg tcccagtggc aggaccagcc tttaggagtg     420
        gcgtttattt catactgttt tagttgttct gctgcatcct gaagttttcg tttaaggtag     480
        tttccattaa gagccccttc ccgccagtct gcaattcgag tctcagtctg taagagcagc     540
  35    acatgaaagt tggagatgga ttgtctatta atgcctaaaa actcgaattt acttgtcagg     600
        gtatttgcca gttcttcaat ctgaaatttc aaatcctggt cttcttctac ttttttggggg     660
        tgggctggcc tttattttct ctggaaaatc ttctactttc atctctttat ctgaatctca     720
        tctatttttt ctgaatttca ccaccaaatg cagttcttca ttttctggag atctcgtcca     780
        anttactaaa ctccactggg aaaatctggn tggnagcttn aanaaaatnt tcattttttct     840
  40    tttttaacat aaacctcccc nttcctnntg gnaagctgnt ggntggaatt aaacngggct     900
        aaacctggaa aattcatttt nttnttcang gttggaaa                             938
```

```
            <210> 344
            <211> 797
            <212> DNA
  45        <213> Homo sapiens
```

```
            <400> 344
        atgtaactaa gttatctgtg aaggacaggt tgggttttgt atcaaagcca tctgtttcag      60
  50    caactgaaaa ggtgttgtct acatctactg gcctaacaaa aacagtgtat aatccagctg     120
        ctttgaaggc tgcacagaaa accttacttg tttccacctc tgcagttgat aataatgaag     180
        cacagaaaaa aaaacaggag gcattgaaac ttcagcagga tgtaaggaaa aggaaacaag     240
        aaattttaga aaagcacatt gaaacacaga agatgttaat ttcaaaactg gagaaaaaca     300
        aaacaatgaa gtctgaagat aaagcagaaa taatgaaaac tttagaggtt ttgacaaaaa     360
  55    atattaccaa gttgaaagat gaggtcaaag ctgcttctcc tggacgctgt cttccaaaaa     420
        gtataaaaac caagactcag atgcagaagg aattacttga cacagaactg gatttatata     480
        agaagatgca ggctggagaa gaagtcactg aacttaggag aaagtataca gaattacagc     540
        tggaagctgc caaacgaggg attctttcat ctggtcgggg cagaggaatt cattcaagan     600
        gtcgaggtgc agttcatggc cgaagcaggg ggcgaaggcc aaggccaagt gtgcctggca     660
  60    tgctgtggtg gatcccgtcc aaggcattgg aaatttctgc tttaccggga gcgatagana     720
        anatcttctt tctcnttgcc caaattggng aaattgaana tggcaaaatt ggtgatnctc     780
        acttcatgcc gaattac                                                     797
```

<210> 345
<211> 737
<212> DNA
<213> Homo sapiens

<400> 345

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ggcattgctt ttctcttttc tttccttttt ttttttttaaa gagaccattc cactttatta      60
taacatctgg atgcataagg actcatgtaa agcagtcata caccattatc attaaaaccc     120
atatggtaaa atacatacac agtccaacaa aaggctaata catagtaaag cctaagcata     180
ctactatgta atattataat acataacttg gagactttag ttagagtact atgttatcta     240
ttcagttttg aaaacattca ttaagatttt aaatgcaaat tcattcctta tttggaataa     300
aacaaagtcc tctaagttat aacaagtatt ggtcataagt tttcagacct attcattaaa     360
ttacaaagaa cccaaagaat tctgtgatgt ccagtagaag tatgtaataa aaacattgca     420
tatgtttcta gtgngatgtc tttagcaatt gtttactgaa gtaaaatgca aacatcaatc     480
tttcaaaatc aagancagaa nggaggtttc ttcttttttg gctatttgng aaatccatct     540
tcatccattt taccaaaaat tgttttttaca aatatgtaaa agtncattag ataatctaat     600
gaaacacagg gngaggtcta gctatgcnga tcaatgatca gtcaaatcat nttnttccaa     660
naacgaaaat cattggnctc ttnttttttat catcatnttg aaggaanggg gcttccncca     720
aananctttt ctggnaa                                                    737
```

<210> 346
<211> 656
<212> DNA
<213> Homo sapiens

<400> 346

```
caatacttcc cttgtaatcg atgagactct cctggaacag gggcagctgg ataccccagg      60
tgttcataat gtgacagccc tgagcaacct cataacgtgg cagaaggtgg attatgactt     120
cagctaccat cagatggaat tcccctgcaa tattaacgtt ttcattactt cggaggggag     180
gtcactcctc ccggcagact gccagattca cttacagccc cagctaattc caccaaacat     240
ggaggagtac atgaacagcc ttctctcagc ggtgctgcct tccgtgctga acaaattccg     300
catttatcta actcttttga gattcttgga atatagcata tctgatgaaa taaccaaggc     360
agttgaagat gactttgtgg aaatgcggaa gaacgaccct cagagcatca ctgctgatga     420
tcttcaccag ctgctcgtgg tggctcggtg tctgtctctc agtgctggtc agacaacgct     480
gtcaagagaa cgatggctga gagcaaagca gctagagtct ttaagaagaa cgaggcttca     540
gcagcaaaaa tgtgtgaatg gaaatgaact ttaaagatgt aatacctatg aagagtaatg     600
gggcaaactg tagccacata attgtaaaat tcagatattc atttatacca cattgg        656
```

<210> 347
<211> 914
<212> DNA
<213> Homo sapiens

<400> 347

```
actgctaatt tgggacgttt tatttattgg aaaggttctt tcaagggaac ttttctgcaa      60
gaccaagcaa tgtatgtatt tttctttggt aaattacaat ttacattggc acaaaaaaca     120
catggtgact aatgtacttt gctctaggac aattaaagaa aatgtatttt atcctcacaa     180
atccagtgaa gccttcattt tatttctaaa agtttaagga aggtctagtc taccagttat     240
aaaaatgaaa accagttcaa ctctaatata aacattattt acatttgttt ataaaaatag     300
atttgagttt aggaaaagtt gaacaactag ttatttttac ttcagttatt aggtacaatg     360
aattccttga ttttttcaagg ctgaccctgt ttccttggtt aacaatttca atttaggcct     420
tataggaaaa aacgtaaggg atcctttatc tgcctccaac taggtaagtt atttgatacc     480
actgacagct taaaaagtaa tgtcctaacc tttctgaaga ttctggttgc cataaccatg     540
ctactacagt ctgttgttag tttgctctat taaaactaat tggtctggag aaaacctacc     600
tgcagttgtc gangctggta ctggagtaac anatgttagc tgatctaaca tactttggaa     660
ccactgatga tcccatnaaa aatgcccaaa atncaatana atcaaagcac ctcatgacat     720
ttaanaaaat aaaactttnt aaanggggna tgncttttna agttcccatt ttgtttcata     780
ttngggccca gctttgtanc ccancattcc ctttgcatgg gtctcaaatg ccctgggatt     840
gggaaaaata aaaaacaagg gggggcttgg tttntttggc ccccaaaacc catttatttc     900
cgttnaagga ctcc                                                       914
```

<210> 348
<211> 736

```
       <212> DNA
       <213> Homo sapiens


       <400> 348
 5     cctgctcaga gaaggcagcc cctcacaagg ctgagggcct ggaggaggct gatactgggg      60
       cctctgggtg ccactcccat ccggaagagc agccgaccag catctcacct tccagacacg     120
       gcgccctggc tgagctctgc ccgcctggag gctcccacag gatggccctg gggactgctg     180
       ctgcactcgg gtcgaatgtc atcaggaatg agcagctgcc cctgcagtac ttggccgatg     240
       tggacacctc tgatgaggaa agcatccggg ctcacgtgat ggcctcccac cattccaagc     300
10     ggagaggccg ggcgtcttct gagagtcagg gtctaggtgc tggagtgcgc acggaggccg     360
       atgtanagga ggaggccctg aggaggaagc tggaggagct gaccagcaac gtcagtgacc     420
       aggagacctc gtccgaggag gaggaagcca aggacgaaaa ggcagagccc aacagggaca     480
       aatcagttgg gcctctcccc caggcggacc cggaggtggg cacggntgcc atcaaaccaa     540
       cagacaggaa aaaagccccc aggaccctgg gaccccgtc agtcaacagg accacagatg     600
15     aggagctgtc aaanctggan gacagantgg caattgaccg gctttaaaag tncaacaggc     660
       aaaanaagcg angttttcaa nacatttgaa tncaaggatt gcaacccctt aagggcccca     720
       agggcttcaa ccggtg                                                     736


       <210> 349
20     <211> 774
       <212> DNA
       <213> Homo sapiens


       <400> 349
25     cagccttcct ggcctccctg gagcggggta ggcggatcat tgatcggact ctgaggaccc      60
       tggggccttc agatatgttc cctgctgaag tggcctggtc cttgtcactg tgtggagacc     120
       tgggactccc cttggacatg gtagagctga tgctggagga gaaaggggtc cagctagact     180
       ccgctggact ggagcggttg gcccaagagg aggcccagca ccgggcacgg caggctgagc     240
       cagttcagaa gcagggattg tggcttgatg tccatgcgct tggggagctg cagcgccaag     300
30     gagtgccccc aactgacgac agccccaagt acaactactc cctgcgaccc agcggaagtt     360
       atgagttcgg cacctgtgag gcccaggtgt tgcaactgta tacagaggac gggacagcag     420
       tggcctccgt ggggaaaggc cagcgctgtg gcctcctctt ggacaggacc aacttctacg     480
       cagaacaggg gggccaggct tcagaccgtg gctacctggt gcgggcaggg caagaggacg     540
       tgctgttccc agtagcccgg gcccaggtct gtggaggttt catcctgcat gaagcaatan     600
35     cccctgaatg cctgcggtta ggggaccagg tgcaactgca tgtggatgan gcctggcgtc     660
       taagctgcat ggcgaaacat acgggcaccc accttgctga actgggcact tgangcaaaa     720
       ccctgggccc tggcacaaaa acaacanggg ctnccatttt aaatcctgaa caaa          774


       <210> 350
40     <211> 872
       <212> DNA
       <213> Homo sapiens


       <400> 350
45     cctctgtgaa ataatttatt tatttgagac agagtctcgc tctgtcaccc aggctggagt      60
       gcagtggtgc gatcttggcc cactgcaacc tccacctccc aggttcaagc gattcttctg     120
       cctcagcctc ccgagtagct gggactacag gtgtgtgcca ccacacccgg ctaatttttt     180
       gtatttttag tanagatggg gtttcaccgt gttagccagg atggtttga tcttctgacc     240
       tcatgatcta cctgcctcgg cctcccaaag tgcttggatt acaggtgtga accaccacac     300
50     ccggccagtg aaataatttc taatgtgcag tcacagccat aattgtccat gtcttctctt     360
       tcaccaaggg ggtgtgtgtc tttgggccca gttctgcctt ccctagccca tgtctccttg     420
       tgtcatgtag gccctggccc aggtgatctt ctttggctca gctgcttggc ctccagcctc     480
       tagtcctcgc ttcagcatgt gggaaggttc tgctggctcc ttcagggctc ctggcattgc     540
       ctttagtcca tgtggggtcc ctgggccgga cctgggtcaa aagctggctt ganggcatag     600
55     gtttggggct atactggagg gcaagctttc caangtcnag taagtgcttt ccggggcctt     660
       gggcccacca cttnggngag ccccacgccc ttggccccc aatggggggc ttggaacact     720
       tgccagtgcc ccaggccctn tggttgtgaa aaggggggg aatgggcacc cttgggncac     780
       cttggaaagg gcacaacaag aaccntttnc ccattgggcc ttggggggct tgaattngga     840
       aaccccaaan cgttgcttng ggggccctgg tt                                   872
60

       <210> 351
       <211> 709
       <212> DNA
```

118

<213> Homo sapiens

<400> 351

```
cagccttgga ttgtaattca gaagaaaata acttcttgac gcgggaaaat ggcgagcccg      60
acgcatttga tgagctcttt gatgccgacg gcgacggtga atcttataca gaagaggctg     120
atgatggaga aacaggagag acaagagacg aaaaggaaaa tctggccact ctctttggag     180
atatggagga cttaacagat gaagaagaag ttcccgcatc acagtcaact gaaaataggg     240
tcctccctgc tcctgccccc aggcgagaga aaacgaatga agagttgcaa gaggaattaa     300
ggaatttgca agagcaaatg aaggccttac aagagcagct aaaagtaaca acaattaaac     360
agacagcaag cccagcccgt ctgcaaaaat cccctgtaga gaagtctccc cggccacctc     420
ttaaggagag gagagttcag agaattcagg agtcaacatg cttttctgcg gagcttgatg     480
tccctgcgct accaagaacc aagagggtgg ctcgaacacc aaaggcttca cctccagatc     540
ccaaaagctc atcttcaagg atgacaagtg caccctccca acccctacag acgatttctc     600
ggaacaaacc tagtgggata ctagaggtca aattgngggg gaccccagg aagntcttgg      660
ggaaacgact caancccatc tgtgtggaaa cctttntntg gtcttgggg               709
```

<210> 352
<211> 772
<212> DNA
<213> Homo sapiens

<400> 352

```
gaatgaagaa atctggcttt taatgtccgt acatcaagac tatgtgatca tcattatcta      60
gatgggaaag ttttattatt tgtagaaatc cagtgctaaa aaatacattt caggatcact     120
tagtccaatc ttcctgattt tacagatgag aaaactgaag cccagaagtt aagctactta     180
cctggagtga gaattaagcc aaattctttt gcctctgggt gttcgtataa acactagaat     240
tttgttatga taaagaagtg aacactctat aaccaaaaga tacagaaaca tagctctctg     300
tttaccttcc aatttttggg caaaaacttc agtgaatgaa gtaatgcaat catccacact     360
gagcttagaa aagacaatga taacttggtt ttccacttaa atgtcaatgt taaatgtggt     420
atcaaaccaa cccaatggca gaaagtaagc aggcaaagct tatgggctta caagcattt      480
gtttttgacg gcgtcaatca ggaatcaatg gacaatacac agccaatcct ttgctttcca     540
gagtcacagg angccaggaa gtctgtggga aaatgtctga agttcnggtt atttaaaggc     600
tggtcanaaa tttaacatgg tcttctncct ttngggaacc agaatttctn cctcctatct     660
tttggaccaa gncnttttcc ttttacattt ccgtccccgt tncccatttt ggtaggaagg     720
gccnccagnt tcctggcann ngctttggtt tccggggagt ttttggtccc aa              772
```

<210> 353
<211> 1102
<212> DNA
<213> Homo sapiens

<400> 353

```
tcggcgcctg caggtgngac tctagtggat ccaaagattc ggncaaggcg gcgcaggcgg      60
ccgagcggga ctggctgggt cggctgggct gctggtgcga ggagccgcgg ggctgtgctc     120
ggcggccaag gggacagcgc gtgggtggcc gaggatgctg cggggcggta gctccggcgc     180
ccctagctgg tgactgctgc gccgtgcctc acacagccga ggcgggctcg gcgcacagtc     240
gctgctccgc gcgcgcgccc ggcggcgctc caggtcgtga cagcgcgaga gagcgcggcc     300
ctcaggagca aggcgaatgt atgacaacat gtccacaatg gtgtacataa aggaagacaa     360
gttggagaag cttacacagg atgaaattat ttctaagaca aagcaagtaa ttcaggggct     420
ggaagctttg aagaatgagc acaattccat tttacaaagt ttgctggaga cactgaagtg     480
tttgaagaaa gatgatgaaa gtaatttggt ggaggagaaa tcaaacatga tccggaagtc     540
actggagatg ttggagctcg gcctgagtga ggcacaggtt atgatggctt tgtcaaatca     600
cctgaatgct gtggagtccg agaagcagaa actgcgtgcg caggttcgtc gtctgtgcca     660
ggagaatcag tggctacggg atgaactggc caacacgcag cagaaactgc agaagagtga     720
gcagtctgtg gctcaactgg aggaggagaa gaagcatctg gagtttatga atcagctaaa     780
aaaatatgat gacgacattt ccccatccga ggacaaagac actgattcta ccaaagagcc     840
tctggatgac ctttttcccca atgatgaaga cgacccaggg caaggaatcc agcagcagca     900
cagcagtgca gccgcggctg ccacagggcg gntacganat ccccgcgcgg gtgnggacgc     960
tccacaacct ggtgatccag tacccctcgc aagggcgcct acaaggtagc tgtgcccctn    1020
ttcaagcagg ncctggaggg cctggagaaa acttnaggac accaacnccc cgacgtnggc    1080
cccttgctc aanattcttg gg                                             1102
```

<210> 354

```
        <211> 603
        <212> DNA
        <213> Homo sapiens

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        ggnggccaag gggacagcgc gtgggtggcc gaggatgctg cggggcggta gctccggcgc       180
        ccctagctgg tgactgctgc gccgtgcctc acacagccga ggcgggctcg gngcacagtc       240
10      nntgntccgc gcgcgcgccc ggcggcgctc caggtgctga cagcgcgaga gagcgcggcc       300
        ctcaggagca aggcgaatgt atgacaacat gtccacaatg gtgtacataa aggaagacaa       360
        gttggagaag cttacacagg atgaaattat ttctaagaca aagcaagtaa ttcaggggct       420
        ggaagctttg aagaatgagc acaattacat tttacaaagt ttgctggana cactnaantg       480
        tttgaagaaa gatgatgaaa gtaattttgg tggaggagaa atcaaacatg atcggaagtc       540
15      actgnagatg tttggagctc ncctgantga ngcacaagtt atgatggntt tttcaaatta       600
        cct                                                                    603


        <210> 355
        <211> 708
20      <212> DNA
        <213> Homo sapiens


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25      tgaggaagtt acacatggga agggagccgt gggcccagct catgccccag gtctcctggg       120
        agagaccacg ccgcaccagg gcaccagctt aggcccagcc ccagccccaa ggtcacgcca       180
        gccgtgtggt tattagtatc atgtcctatg cacacagacg caggagaaat gagtgagcgc       240
        tgcggctccc ggccaggggc cctccctgcc gccctggctg tcccgggcca gctccgggcc       300
        acactcggca gtcccatcct ggagcggggc caggtcgggg tcaagttagc ggtggcgtct       360
30      tccaggccac tgctgctgct gtcgttttcc acaaaaagag gctcggccag agacgccccg       420
        gggttctttg gctcactctc tcgtgaactt cctcccttca cttcctaacc agctttcact       480
        gctgcgtcta atggaagccc ggagtttgct aaaggaacca ctgcgtttta aagatccagt       540
        gccatcttcc tccctccgt cagggccact ttcgtacttg accacgtnca cgttganget       600
        ctcacgggtt ctgcgctttt tncattgttn ttaangggca ttngncactt tctgccaccc       660
35      ttttggtttg tgaaacaatt gtcaaanaac ctnttttncc gaaaaact                   708


        <210> 356
        <211> 608
        <212> DNA
40      <213> Homo sapiens


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45      tgacaacatg tccacaatgg tgtacataaa ggaagacaag ttggagaagc ttacacagga       180
        tgaaattatt tctaagacaa agcaagtaat tcaggggctg aagctttga agaatgagca       240
        caattccatt ttacaaagtt tgctggagac actgaagtgt ttgaagaaag atgatgaaag       300
        taatttggtg gaggagaaat caaacatgat ccggaagtca ctggagatgt ggagctcgg       360
        cctgagtgag cacaggtta tgatggcttt gtcaaatcac ctgaatgctg tggagtccga       420
        gaagcaaaaa ctgcgtgcgc aggttcgtcg tctgtgccag agaatcaat ggctaccgga       480
50      tgaactggcc cacacgcaca naaactgcag aaaaatgaca atctgtggct taactggagg       540
        aggagaaaaa acatcttgag tttattaatc aacttaaaaa attgatgacc gacntttccc       600
        attcgagg                                                               608


55      <210> 357
        <211> 715
        <212> DNA
        <213> Homo sapiens


60      <400> 357
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        gtcgagttta gcattctgcc ttctcanaac cttanagttg tggggttgga ggccaaggcc       120
        ttcctctgaa gactctgagg cagcctcagc tgcccaccca gtgaattcac tcattttatc       180
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    taanactcca tctgaagagg gggctgcctc catgcacaaa gtgagtctag gaaccactgc   240
    actggataat ttaaaactca aactgttttg gtagatcacc cgtggccaac gcaccctggg   300
    atgaattcca tcaaacctgc agagctatca ggggacacac cagatacaca gcctgcacat   360
    ggcctataga atcaggtgtc caaagtgaga aaggaagcgt ggaaggagga aaccagcagg   420
    cgtgcagagg agcagctgct ttcatcccca gcagcgacac ttccagcccg cgggcctgac   480
    ggggacacct gcccacgaac cccctgcagg ggacacgagt tctccttcct ctccgagtcc   540
    atctttaaaa tggtaacaga gctctgaatc gtcccatttt atcatcagat gatttcatgt   600
    caacatggac ctanaaatac tgtcttnaag aaaaaacttt cttccaaact tcattcaaaa   660
    aggatcacaa ttntgcaccc tggcttccta caagccttaa ataaaaggac tttgt         715


        <210> 358
        <211> 628
        <212> DNA
        <213> Homo sapiens


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    ggctgtgctc ggcggccaag gggacagcgc gtgggtggcc gaggatgctg cggggcggta   120
    gctccggcgc ccctcgctgg tgactgctgc gccgtgcctc acacagccga ggcgggctcg   180
    gcgcacagtc gctgctccgc gctcgcgccc ggcggcgctc caggtgctga cagcgcgaga   240
    gagcgcggcc ctcaggagca aggcgaatgt atgacaacat gtccacaatg gtgtacataa   300
    aggaagacaa gttggagaag cttacacagg atgaaattat ttctaagaca aagcaagtaa   360
    ttcaggggct ggaagctttg aagaatgagc acaattccat tttacaaagt ttgctggaga   420
    cactgaagtg tttgaagaaa gatgatgaaa gtaatttggt ggaggagaaa tcaaacatga   480
    tccggaagtc actggagatg ttggagctcg gcctgagtga ggcacaggtt atgatggctt   540
    tgtcaaatca cctgaatgct gtggagtccg agaaacaaaa actgcgtgcg caggttcgtc   600
    cgtctgtgcc aggagaatca atggctac                                      628


        <210> 359
        <211> 690
        <212> DNA
        <213> Homo sapiens


        <400> 359
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    ctgaagtgtt tgaagaaaga tgatgaaagt aatttggtgg aggagaaatc aaacatgatc   120
    cggaagtcac tggagatgtt ggagctcggc ctgagtgagg cacaggttat gatggctttg   180
    tcaaatcacc tgaatgctgt .ggagtccgag aagcagaaac tgcgtgcgca ggttcgtcgt   240
    ctgtgccagg agaatcagtg ctacgggat gaactggcca acacgcagca gaaactgcag   300
    aagagtgagc agtctgtggc tcaactggag gaggagaaga agcatctgga gtttatgaat   360
    cagctaaaaa aatatgatga cgacatttcc ccatccgagg acaaagacac tgattctacc   420
    aaagagcctc tggatgacct tttccccaat gatgaagacg acccagggca aggaatccag   480
    cagcagcaca gcagtgcagc cgcggctgcc acaggcgggn tacganatcc ccgcgcgggt   540
    gnggacgctc cacaacctgg tgatccagta cccctcgcaa gggcgcctac aaggtagctg   600
    tgcccctntt caagcaggnc ctggagggcc tggagaaaac ttnaggacac caacnccccg   660
    acgtnggccc ccttgctcaa nattcttggg                                    690


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        <211> 675
        <212> DNA
        <213> Homo sapiens


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    ctggtgcgag gagccgcggg gctgtgctcg gcggccaagg ggacagcgcg tgggtggccg   120
    aggatgctgc ggggcggtag ctccggcgcc cctagctggt gactgctgcg ccgtgcctca   180
    cacagccgag gcgggctcgg cgcacagtcg ctgctccgcg cgcgcgcccg gcggcgctcc   240
    aggtgctgac agcgcgagag agcgcggccc tcaggagcaa ggcgaatgta tgacaacatg   300
    tccacaatgg tgtacataaa ggaagacaag ttggagaagc ttacacagga tgaaattatt   360
    tctaagacaa agcaagtaat tcaggggctg gaagctttga agaatgagca caattccatt   420
    ttacaaagtt tgctggagac actgaagtgt ttgaagaaag atgatgaaag taatttggtg   480
    gaggagaaat caaacatgat cccggaagtc actggagatg ttggagctcg gcctgagtga   540
    ngcacaagtt atgatggctt tgtcaaatca cctgaatgct gtggagtcca anaancaaaa   600
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actgcgttgc gcaagttcgt cgtcttgtgc ccaggaaaaa atcaantggt tacnggatga      660
aactgggcca acccc                                                       675


        <210> 361
        <211> 2581
        <212> DNA
        <213> Homo sapiens


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agaaaggagg caatctcagt ctcggtctcc aaaaagggat actactaggg aaagcagaag      180
atctgaatca ctgtccccaa gaagagaaac ttctagagag aacaaaagat ctcagccaag      240
agtgaaagat tcttccccag gagaaaaatc caggtcccag agcagagaac gagaaagtga      300
tagagatggg cagaggagag agagagaaag gagaaccaga aagtggtcta ggtccagatc      360
tcattctagg tcccccctcaa gatgtagaac aaaaagtaag agttcatcat ttggtagaat      420
tgacagagat agttactctc cccggtggaa gggaagatgg gcaaatgatg gttggagatg      480
tccaccagga aatgatcggt acagaaagaa tgacccanag aaaccgaatg aaaatacang      540
aaaagaaaaa aatgacatcc atctagatgc tgatgatcca aattctgctg acaaacatag      600
aaatgactgt cccaattgga taacagaaaa aataaactct gggcctgatc caagaaccag      660
aaatccagaa aagttgaaag agtctcattg ggaagaaaat agaaatgaaa attcaggaaa      720
ttcttggaat aaaaactttg gttctggttg ggtatctaac cgtggtagag gcagaggcaa      780
ccgtggcaga ggcacttaca gaagtagttt tgcctataaa gatcagaatg aaaatcggtg      840
gcaaaatcga aaacccctct cagggaattc aaacagttca gggagtgaat ctttcaagtt      900
tgtggaacag caatcctata gcgaaaaag tgaacaggag ttctcatttg atacaccagc      960
agatagatct ggatggacat ctgcatccag ctgggccgtg agaaagactt tgccagcaga     1020
tgtacaaaac tactactcac gacgaggcag aaattcttca ggtccacagt ctggatggat     1080
gaaacaagag gaggaaacat ctggacagga ttctagccta aagaccaaa caaaccagca     1140
agttgatggt tctcagctac ctataaatat gatgcaaccg caaatgaatg taatgcagca     1200
acaaatgaat gcacaacacc agcctatgaa tatcttccca tatccagtgg gtgttcatgc     1260
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ccacacagga gtgcccctca tgcaggtagc cactcctacc agtgtatctc agggactacc     1380
accaccacca ccccctcccc caccatccca acaagtcaac tacattgctt cacaaccaga     1440
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agttttgcct gctccgacag cagccccagg aaatacggga atggttcagg accaagttc     1560
tggtaatact tcgtcatcaa gtcacagcaa agcctctaat gctgctgtaa aattggcaga     1620
aagcaaagta agtgttgcag tggaagccag cgcagatagc tcgaagacag acaagaaatt     1680
gcaaattcaa gaaaaagcag cacaagaggt aaaattggcc atcaagccat tttaccaaaa     1740
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agacaaatac aaatattcac ggaaggggag ccaaaagaaa actctggaag aacctgtgtc     1920
tactgaaaaa aacataggct gaaatgggga acgctgtcaa ggacattatc aggatatctg     1980
caaagtgcaa tttcaacatg taccattaac tgaaaatcat acataactgt gattgaaatt     2040
tggtttgata aaattatttt tttaacatag gatatgatgt tttgttctaa ataaatatag     2100
gtctgcactg caacttctgt atccttcctt cccctccacc ctcccccaca aaattcaagg     2160
gaaagtaaag ggtttaaagg aatgtgcatc tttactagga ctgtgttata gtgtggatac     2220
tggaaaatgt atagcttttt gattagggca atggagtgca taaattagaa acttctaagt     2280
gcactggttt tcaaagagat atatataatg catttattct gtcaggttaa aatataaagt     2340
atgatcttta tgattttttc cctctaatta tagaaagtta aataatgtat taccatgaaa     2400
aatgtttnta atattaaata gaacatatca gttgcaaagt tcctaatgtg tattttttaaa    2460
gcacatatct gaataaattg cctagataga aaaaaaatta tcacgagtaa aatttagtgt     2520
tcaaaacatt gagacactct tcacctattg tatgaccaaa taaaggttat gctgcttgtt     2580
t                                                                     2581


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        <211> 664
        <212> DNA
        <213> Homo sapiens


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ttcaggaaat tcttggaata aaaactttgg ttctggttgg gtatctaacc gtggtagagg      120
cagaggcaac cgtggcagag gcacttacag aagtagtttt gcctataaag atcagaatga      180
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        aaatcggtgg caaaatcgaa aacccctctc agggaattca aacagttcag ggagtgaatc    240
        tttcaagttt gtggaacagc aatcctataa gcgaaaaagt gaacaggagt tctcatttga    300
        tacaccagca gatagatctg gatggacatc tgcatccagc tgggccgtga gaaagacttt    360
        gccagcagat gtacaaaact actactcacg acgaggcaga aattcttcag gtccacagtc    420
   5    tggatggatg aaacaagagg aggaaacatc tggcaggatt ctagcctaaa agaccaaaca    480
        aaccacaagt tgatggtctc aactcctata atatgatgca accccaaatg aatgtaatgc    540
        agcacaaatg aatgcncacc cacctataat anttccattt cnangggtgt ctctctttgt    600
        gacatccacc ccatcatttt acattcttct tactaccttg nttttcccca agagtgccct    660
        cttc                                                                  664
  10

            <210> 363
            <211> 735
            <212> DNA
            <213> Homo sapiens
  15

            <400> 363
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        aacactaaat tttactcgtg ataatttttt ttctatctag gcaatttatt cagatatgtg    120
        ctttaaaaat acacattagg aactttgcaa ctgatatgtt ctatttaata ttanaaacat    180
  20    ttttcatggt aatacattat ttaactttct ataattagag ggaaaaaatc ataaagatca    240
        tactttatat tttaacctga cagaataaat gcattatata tatctctttg aaaaccagtg    300
        cacttagaag tttctaattt atgcactcca ttgccctaat caaaaagcta tacattttcc    360
        agtatccaca ctataacaca gtcctagtaa agatgcacat tcctttaaac cctttacttt    420
        cccttgaatt ttgtgggggga gggtggaggg gaaggaagga tacagaagtt gcagtgcaga    480
  25    cctatattta tttagaacaa aacatcatat cctatgttaa aaaaataatt ttatcaaaac    540
        caaatttcaa tcacaggtat gtatgatttt cagttaatgg nacatgttga aattgcactt    600
        tggcagatat cccggataat gnccttgaca ggcgttcccc atttcaagnc tatggttttt    660
        tcaagtanac caaggtcttt ccanaggttt cttttggctc ccctttccgg gaaaatttgg    720
        gatttgggct acata                                                      735
  30

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            <211> 698
            <212> DNA
            <213> Homo sapiens
  35

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        tggaagccag cgcagatagc tcgaagacag acaagaaatt gcaaattcaa gaaaaagcag    120
        cacaagaggt aaaattggcc atcaagccat tttaccaaaa taaagatatc accaaggaag    180
  40    aatataaaga aattgtacgg aaagcagtag ataaagtttg tcatagtaag agtggagaag    240
        taaattctac taaagtggca aatctggtta aagcctatgt agacaaatac aaatattcac    300
        ggaagggggag ccaaaagaaa actctggaag aacctgtgtc tactgaaaaa aacataggct    360
        gaaatgggga cgctgtcaa ggacattatc aggatatctg caaagtgcaa tttcaacatg    420
        taccattaac tgaaaatcat acataactgt gattgaaatt tggtttgata aaattatttt    480
  45    tttaacatag gatatgatgt tttgttctaa ataaatataa gtctgcactg naacttctgt    540
        atnctttctt ccctcaccct ccccacaaat tcaggaaag taaggttta aaggatgtca     600
        tctttctaga ctgngtatag tgnggatact gggaaatgtt tacttttgt tanggcatgg    660
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  50        <210> 365
            <211> 688
            <212> DNA
            <213> Homo sapiens

  55        <400> 365
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        ataatttcag tagacagcac tccaacttca taatacaaac aatatctcat ggaccctggg    120
        gcaatcactg tgcttctgaa gctacatctt ttggatggaa cattccagca gtacacactg    180
        tggccattta aaggaaggta agagaaaaaa atgtgataat taccaaaaca aattttaaaa    240
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        tctataaaac attggtcaat gtgactagta agttaacggg accaaggttt caaagatcaa    360
        tactgaacct tgataaataa taagaggaaa tgtaactcca caaaatgttt ctgattaagt    420
        ttgtgcccat gcaaaattaa cataaatttc ttaactcaag aatgaggaat attaaagcaa    480
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tgtattttt  caacataaag  catgcatttt  ctaatacatt  cttaaacatt  tcaaaatttt  540
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catggaacac  acacttgtta  ctgtcacgga  aataattcat  gggagtgcta  ctaaaaatat  660
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        <211> 663
        <212> DNA
        <213> Homo sapiens


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agaaaggagg  caatctcagt  ctcggtctcc  aaaaagggat  actactaggg  aaagcagaag  180
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tccaccagga  aatgatcggt  acagaaagaa  tgacccanag  aaaccgaatg  aaaatacang  540
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aaatgactgt  cccattggat  tacagaaaaa  ataaactctt  ggcctgnccc  agaaccagaa  660
att                                                                  663


        <210> 367
        <211> 770
        <212> DNA
        <213> Homo sapiens


        <400> 367
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gtcccaattg  gataacagaa  aaaataaact  ctgggcctga  tccaagaacc  agaaatccag  120
aaaagttgaa  agagtctcat  tgggaagaaa  atagaaatga  aaattcagga  aattcttgga  180
ataaaaactt  tggttctggt  tgggtatcta  accgtggtag  aggcagaggc  aaccgtggca  240
gaggcactta  cagaagtagt  tttgcctata  aagatcagaa  tgaaaatcgg  tggcaaaatc  300
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gttctcagct  acctataaat  atgatgcaac  ccgcaaatga  atgtaatgca  gcacaaatga  660
atgcccacac  cagcctatga  atatcttncc  atatncagtg  ggtgttcatg  ctccttttga  720
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        <211> 800
        <212> DNA
        <213> Homo sapiens


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aacaccagcc  tatgaatatc  ttcccatatc  cagtgggtgt  tcatgctcct  ttgatgaaca  180
tccaacgcaa  tccatttaac  attcatcctc  agctaccctt  gcatctccac  acaggagtgc  240
ccctcatgca  ggtagccact  cctaccagtg  tatctcaggg  actaccacca  ccaccacccc  300
ctcccccacc  atcccaacaa  gtcaactaca  ttgcttcaca  accagatgga  aagcaattgc  360
agggtattcc  tagttcttct  catgtaagta  ataacatgag  tacaccagtt  ttgcctgctc  420
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catcaagtca  cagcaaagcc  tctaatgctg  ctgtaaaatt  ggcagaaagc  aaagtaagtg  540
ttgcagtgga  agccagcgca  gatagctcga  agacagacaa  gaaattgcaa  attcaagaaa  600
aagcagcaca  agaggtaaaa  ttggccatca  agccatttta  ccaaaataaa  gatatcacca  660
aggaagaata  taaagaaatt  gtccggaaag  cagtanataa  agttggcata  ntaagagtgg  720
agaagtaaat  tcttactaag  tggcaaaant  ggttaaagnc  tatgtagaca  aatacaaatn  780
```

ttcacggaag ggagccnaaa   800

        <210> 369
        <211> 1336
        <212> DNA
        <213> Homo sapiens

        <400> 369
        gtttccaggg aaggcagcga gcaggatccc ctactctgcg ggcggcgcga ggcgtctggc   60
        tcttcgcggc ggcggcgagg ggaaagggag cgcggggggct gggtggaatc gaggagtgag   120
        gaaaaaggga aggggcgggg gagagggacc agggaaggcg tcgggggggaa tctcgcgagg   180
        gttggagttt tggcgagagt ttgtggaaga tggcgcctgt tgtgacaggt cattgaaatt   240
        atgagactat cattcaaatg gaagcattat agttcttcgg aaccattatg atctcaaaac   300
        gaaaggagaa tgatacagat acactggctg aggtgttttg aggtgcatcg aagtgttcca   360
        agctgtgact taccttaaca tgttcttgaa gtaccatggc gtggattaaa aggaaatttg   420
        gtgagcggcc tccacctaaa cgacttacta gggaagctat gcgaaattat ttaaaagagc   480
        gaggggatca aacagtactt attcttcatg caaaagttgc acagaagtca tatggaaatg   540
        aaaaaaggtt tttttgccca cctccttgtg tatatcttat gggcagtgga tggaagaaaa   600
        aaaagaacaa atggaacgcg atggttgttc tgaacaagag tctcaaccgt gtgcatttat   660
        tgggatagga aatagtgacc aagaaatgca gcagctaaac ttggaaggaa agaactattg   720
        cacagccaaa acattgtata tatctgactc agacaagcga aagcacttca tgttgtctgt   780
        aaagatgttc tatggcaaca gtgatgacat tggtgtgttc ctcagcaagc ggataaaagt   840
        catctccaaa ccttccaaaa agaagcagtc attgaaaaat gctgacttat gcattgcctc   900
        aggaacaaag gtggctctgt ttaatcgact acgatcccag acagttagta ccagatactt   960
        gcatgtagaa ggaggtaatt ttcatgccag ttcacagcag tggggagcct ttttattca   1020
        tctcttggat gatgatgaat cagaaggaga agaattcaca gtccgagatg gctacatcca   1080
        ttatggacaa acagtcaaac ttgtgtgctc agttactggc atggcactcc caagattgat   1140
        aattaggaaa gttgataagc ngaccgcatt atttggatgc agatgaacct gtgtcncaac   1200
        tncnttaaat gtgcatttta cccttangga tccagaaaga atggtttgt gccttttntc   1260
        aanaaagaat aattcaattt tcangcccccc tccttgttcc aaaggaaccc caattaaggg   1320
        ggatggatta atggat   1336

        <210> 370
        <211> 815
        <212> DNA
        <213> Homo sapiens

        <400> 370
        cagaagtcat atggaaatga aaaaaggttt ttttgcccac ctccttgtgt atatcttatg   60
        ggcagtggat ggaagaaaaa aaagaacaaa tggaacgcga tggttgttct gaacaagagt   120
        ctcaaccgtg tgcatttatt gggataggaa atagtgacca agaaatgcag cagctaaact   180
        tggaaggaaa gaactattgc acagccaaaa cattgtatat atctgactca gacaagcgaa   240
        agcacttcat gttgtctgta aagatgttct atggcaacag tgatgacatt ggtgtgttcc   300
        tcagcaagcg ataaaagtc atctccaaac cttccaaaaa gaagcagtca ttgaaaaatg   360
        ctgacttatg cattgcctca ggaacaaagg tggctctgtt taatcgacta cgatcccaga   420
        cagttagtac cagatacttg catgtagaag gaggtaattt tcatgccagt tcacagcagt   480
        ggggagcctt ttttattcat ctcttggatg atgatgaatc agaaggagaa gaattcacag   540
        tccgagatgg ctacatccat tatggacaaa cagtcaaact tgtgtgctca gttactggca   600
        tggcactccc aagattgata attaggaaag ttgataagcn gaccgcatta tttggatgca   660
        gatgaacctg tgtcncaact ncnttaaatg tgcattttac ccttanggat ccagaaagaa   720
        tggtttgtgt cctttntca anaaagaata attcaatttt cangccccct ccttgttcca   780
        aaggaacccc aattaagggg gatggattaa tggat   815

        <210> 371
        <211> 625
        <212> DNA
        <213> Homo sapiens

        <400> 371
        ggaagatggc gcctgttgtg acaggtcatt gaaattatga gactatcatt caaatggaag   60
        cattatagtt cttcggaacc attatgatct caaaacgaaa ggagaatgat acagatacac   120
        tggctgaggt gttttgaggt gcatcgaagt gttccaagct gtgacttacc ttaacatgtt   180
        cttgaagtac catggcgtgg attaaaagga aatttggtga gcggcctcca cctaaacgac   240

125

```
        ttactaggga agctatgcga aattatttaa aagagcgagg ggatcaaaca gtacttattc    300
        ttcatgcaaa agttgcacag aagtcatatg gaaatgaaaa aaggtttttt tgcccacctc    360
        cttgtgtata tcttatgggc agtggatgga agaaaaaaaa agaacaaatg gaacgcgatg    420
        gttgttctga acaanaagtc tcaacccgng tgcatttatt gggataggaa ataagtgccn    480
    5   aaaaatgcac cacttaactt ggaaggaaag aactattgca cagnccaaac atttgntatn    540
        tntgactnaa nacaanccga aagcacttct gttgtctgta aaaaatgttc tttggcacaa    600
        ggatgacatt tggngggttc ctcaa                                          625


            <210> 372
    10      <211> 741
            <212> DNA
            <213> Homo sapiens


            <400> 372
    15  gtttccaggg aaggcagcga gcaggatccc ctactctgcg ggcggcgcga ggcgtctggc     60
        tcttcgcggc ggcggcgagg ggaaagggag cgcgggggct gggtggaatc gaggagtgag    120
        gaaaaaggga aggggcgggg gagagggacc agggaaggcg tcgggggaa  tctcgcgagg    180
        gttggagttt tggcgagagt ttgtggaana tggcgcctgt tgtgacaggt cattgaaatt    240
        atganactat cattcaaatg gaagcattat agttcttcgg aaccattatg atctcaaaac    300
    20  gaaaggagaa tgatacagat acactggctg aggtgttttg aggtgcatca aantgttcca    360
        agctgtgact taccttaaca tgttcttgaa gtaccatggc gtggattaaa aggaaatttg    420
        gtgatcggcc tccacctaaa cgacttacta gggaagctat gcgaaattat ttaaaagagc    480
        gaggggatca aaccgtactt attcttcatg caaaagttgc acagaaantc ntatggaaat    540
        gaaaaaangt tttttttccc acctccttgt gtatatcttt atgggcancc ggatggaaag    600
    25  aaaaaaaaaa anaacaaatg ggaacncnat ngtttttctt gaacaaagaa tctcaaaccg    660
        tgttgccatt tattgggata ggaaaatant taccaaanaa atgccaacaa cttaaccttg    720
        gaaangaaan aaactttttg c                                              741


            <210> 373
    30      <211> 752
            <212> DNA
            <213> Homo sapiens


            <400> 373
    35  actgtggctt ctgcatttca aatcagcact tgcagggaga caacggggtt tttgaatagt     60
        atcacctggt atgaaaagtt ttcccaagaa accacaaacg attgttcatt ttttctcctt    120
        ttttgttaac tttttgccac actcaagtca gtttaagtcc tagcaaaaag acggtagtta    180
        ggataccact gtggctgtag atgatgtgac actggttgaa tttgtgctgg cgtttgtgta    240
        acttccctcg ctgtttgtgt ttgattcgtt aggggcacc  tggcttgaat tggctcgaag    300
    40  gattgctcct gctgcactgc aatgtggccg cggccctggt tctggtgtgt aggtaaaggt    360
        aaggctggtg gaataaatga ttccatcatt tcggaccaaa gttactggaa cctggactgg    420
        ttgccggacc catctccaac cttctcggaa tgcanaaatg tctgggacga cacagagcat    480
        actctctcca cacctgtaca tagtttcagc ttctacatcc ccaaaccaca ctcgtaaatt    540
        tggagtgaaa ttctgtnctg taagttcaag cattgctacg tccccaccgc cattcaactg    600
    45  aangctctct accacaggca caggagtgac tggggcaang acanggcccc attccctcat    660
        aaaatgtata ctctgncnta tctgngctaa tgattggccc agaagcccca tcatttatca    720
        tcccttttatt tgggtctttt gggacatggg ag                                752


            <210> 374
    50      <211> 768
            <212> DNA
            <213> Homo sapiens


            <400> 374
    55  aaacagtact tattcttcat gcaaaagttg cacagaagtc atatggaaat gaaaaaaggt     60
        tttttgccc acctccttgt gtatatctta tgggcagtgg atggaagaaa aaaaagaac     120
        aaatggaacg cgatggttgt tctgaacaag agtctcaacc gtgtgcattt attgggatag    180
        gaaatagtga ccaagaaatg cagcagctaa acttggaagg aaagaactat tgcacagcca    240
        aaacattgta tatatctgac tcagacaagc gaaagcactt catgttgtct gtaaagatgt    300
    60  tctatggcaa cagtgatgac attggtgtgt tcctcagcaa gcggataaaa gtcatctcca    360
        aaccttccaa aaagaagcag tcattgaaaa atgctgactt atgcattgcc tcaggaacaa    420
        aggtggctct gtttaatcga ctacgatccc agacagttag taccagatac ttgcatgtag    480
        aaggaggtaa ttttcatgcc agttcacgac agtggggagc cttttttatt catctcttgg    540
```

```
atgatgatga atcagaagga gaagaattca cagtcccgag atggctacat ccattatgga      600
caaacagtca aacttgtgtg ctcagttact ggcatggcct ccccaagatt gataattaag      660
gaaagttgat aagcaagacc cgcattattg gatgcagatg atcctgtgtc acaaactcat      720
taaatgtgcc attttaccnt aaggatncag aaaagaatgg tttttgtg                   768
```

        <210> 375
        <211> 665
        <212> DNA
        <213> Homo sapiens

        <400> 375

```
tgtggaagat ggcgcctgtt gtgacaggtc attgaaatta tgagactatc attcaaatgg       60
aagcattata gttcttcgga accattatga tctcaaaacg aaaggagaat gatacagata      120
cactggctga ggtgttttga ggtgcatcga agtgttccaa gctgtgactt accttaacat      180
gttcttgaag taccatggcg tggattaaaa ggaaatttgg tgagcggcct ccacctaaac      240
gacttactag ggaagctatg cgaaattatt taaaagagcg aggggatcaa acagtactta      300
ttcttcatgc aaaagttgca cagaagtcat atggaaatga aaaaaggttt ttttgcccac      360
ctccttgtgt atatcttatg ggcagnggat ggaagaaaaa aaagaacaaa tggaacgcga      420
tggttgttct gaacaagagt ctcaaccgtg tgcatttatt gggataggaa atagtgacca      480
agaaatgcag cagctaaact tggaaggaaa gaactattgc acaccaaaac attgtatata      540
tcttgactca acaagccgaa aagcccttc atgttgtctg taaagatgtt ctatggcaac      600
angngatgac attggggggg ttcctcacaa agccggatta aaaagtcatt ttncaaaccc      660
tttcc                                                                   665
```

        <210> 376
        <211> 698
        <212> DNA
        <213> Homo sapiens

        <400> 376

```
gcgtggttca ggcgggtgtc ttcggccggg cttgggaaca taaaagtttg tttcaccacg       60
taagccggac ctcgcactcc ggtcccggtc tcgtcgccaa gatggtgaag cccaagtaca      120
aaggacggag caccatcaac ccgtccaagg ccagcacaaa cccagatcga gtgcagggag      180
caggaggcca aaacatgagg gaccgggcca ccatccggcg cctgaatatg tataggcaaa      240
aggagcgcag gaacagtcgt ggtaaaataa ttaaacccct gcaatatcaa tcaacggtgg      300
cttctggcac agtggcaaga gtagagccaa atattaaatg gtttggaaac acacgtgtga      360
ttaagcagtc atcattacaa aaatttcaag aggaaatgga tacagttatg aaggatccat      420
acaaagttgt catgaagcaa agcaagttac caatgtctct tcttcatgat cgaatccggc      480
ctcataactt gaaggggcac attcttgata ctgaaagttt tgaaactaca tttggcccta      540
antcacagaa ggaaaccgac caaacttatt ttgcaagtga tatgcagtct cttatcgaaa      600
atgcttgaaa tgtccactga gaacttttga ccaagggcaa ggatcgngat ttggtaactg      660
gaaganactg gggtgagaaa tggaagcttc aagaaaaa                               698
```

        <210> 377
        <211> 797
        <212> DNA
        <213> Homo sapiens

        <400> 377

```
ggcgggtgtn ttcggccggg cttgggaaca taaaagtttg tttcaccacg taagccggac       60
ctcgcactcc ggtcccggtc tcgtcgccaa gatggtgaag cccaagtaca aaggacggag      120
caccatcaac ccgtccaagg ccagcacaaa cccagatcga gtgcagggag caggaggcca      180
aaacatgagg gaccgggcca ccatccggcg cctgaatatg tataggcaaa aggagcgcag      240
gaacagtcgt ggtaaaataa ttaaacccct gcaatatcaa tcaacggtgg cttctggcac      300
agtggcaaga gtagagccaa atattaaatg gtttggaaac acacgtgtga ttaagcagtc      360
atcattacaa aaatttcaag aggaaatgga tacagttatg aaggatccat acaaagttgt      420
catgaagcaa agcaagttac caatgtctct tcttcatgat cgaatccggc ctcataactt      480
gaaggtgcac attcttgata ctgaaagttt tgaaactaca tttggcccta agtcacagag      540
gaaacgacca aacttatttg caagtgatat gcagtctctt atcgaaatg ctgaaatgtc      600
cactgagagc tatgacccag gcaaggatc gtgatttggt aactgaaaga cactggtgtg      660
agaaatgaag ctcaagaaga gatctattaa aangggcagt nccaaaagaa tatngggtga      720
gctnttacaa ggggatagat ttattcanat gttgtagttc aagttctttg atgcttgaaa      780
aaccaatggg gtactcg                                                      797
```

```
        <210> 378
        <211> 776
        <212> DNA
        <213> Homo sapiens


        <400> 378
        gntttttgtat aatttaataa aaaccttttta aacattactg cttttgtctg aattttttgc        60
        gtttgtgttt ctgtccctct gagtcattgg tcttcttttt gttcctgttc ctatttttca       120
        cgttgtgtgt ttcatagtag cgcacaccaa cttttttcgg ccgttgctgt cgtactgctc       180
        gcctccgttc ttttgatgta agcgccctgg gagcttatt tgaatgttcc tgttcctctt        240
        ccctttgtgc cttccgcttc tttcccttt tggaaggngc tctgtcatct acatcttctt         300
        ccagtgtttt tctttgttct tcaggttttg caaatatctt ttcactcagt cccttggata        360
        ttctgactgc tgaaaacttt ttggctttgg ctttgtctag aaacttctga tatttgacaa        420
        tcttctcatc cagtgcttta ataacggctt tggtgtcgtt tcccacattt tcctcctcag        480
        gctccgagga agactcttcc cgcatcatct ctttggtgct cctgttcctc ctcctcttca        540
        ttaaaaaaaa gctctcaagc tctttctcaa gatctgacac ctncacanga accaggtcat        600
        tcccaaaaaa ctgaggcncn cgttgaattt taccaaagtc tgncgactcg tggaagaatc       660
        tgccgcanct ctggggtaac cttacangga ncgggcccct tcngtcttcc ttaaaggaag      720
        ggatctggac ccttcanctg caggttttntg ggacttcctc ccctggaatg ggtctt          776


        <210> 379
        <211> 633
        <212> DNA
        <213> Homo sapiens


        <400> 379
        cctgggcaac aaaacggtgg gttgctgtcc tctcccagga ttatccaaca cttgctttcc        60
        atgcaagcct tactaacccg tttggcaagg gagcattcat tcagcttctg cggcagtttg       120
        gaaagttgca cactgacaag aaacagatca gtgttgggtt cattggctat ccaaatgttg       180
        gcaagagctc tgtgataaat acattgcgtt ctaagaaagt ttgcaacgtg gctcccattg       240
        caggtgaaac aaaggtctgg cagtatatta ctttgatgcg tcggatattc ctgattgact       300
        gtccaggtgt ggtttacccc tctgaggact ccgagacaga cattgtgcta aaaggagttg       360
        ttcaagtaga aaaaattaag agtcctgaag accacattgg tgctgtactt gaacgagcaa       420
        agccagaata tatcagcaaa acatacaaga ttgattcttg ggagaatgct gaggactttc       480
        ttgagaagct cgctttccgg actgggaagt tactaaaggg tggagagccc gacttgcaga       540
        ctgtgggtaa gatggtcctc aatgactggc aaaagggccg gattnctttc tttgtcaagc       600
        cacccaatgc agagcccttg tgggcccccca ctt                                   633


        <210> 380
        <211> 630
        <212> DNA
        <213> Homo sapiens


        <400> 380
        gttcaggcgg gtgtcttcgg ccgggcttgg gaacataaaa gtttgtttca ccacgtaagc        60
        cggacctcgc actccggtcc cggtctcgtc gccaagatgg tgaagcccaa gtacaaagga       120
        cggagcacca tcaacccgtc caaggccagc acaaatccag atcgagtgca gggagcagga       180
        ggccaaaaca tgagggaccg ggccaccatc cggcgcctga atatgtatag gcaaaaggag       240
        cgcaggaaca gtcgtggtaa aataaattaaa cccctgcaat atcaatcaac ggtggcttct       300
        ggcacagtgg caagagtaga gccaaatatt aaatggtttg gaaacacacg tgtgattaag       360
        cagtcatcat tacaaaaatt tcaagaggaa atggatacag ttatgaagga tccatacaaa       420
        gttgtcatga agcaaagcaa gttaccaatg tctcttctcc atgatcgaat ccggcctcat       480
        aacttgaagg tgcacattct tgatactgaa agttttgaaa ctacatttgg ccctaagtcc       540
        agangaaacg accaaactta tttgcaagtg atatgcagtc tcttatcgaa aatgctgaaa       600
        tgtccactga gagctatgac aagggcaagg                                       630


        <210> 381
        <211> 1285
        <212> DNA
        <213> Homo sapiens


        <400> 381
```

```
ctgaaattga tcaagttgtt cctgcagcac agtcttcacc tataaactgt gagaagagag       60
aaaacttgtt accatttgtg ggactgaata atctcggcaa tacttgctat cttaatagta      120
tacttcaggt attatatttt tgtcccggtt ttaaatctgg agtaaagcac ttatttaata      180
ttatttcaag gaagaaagaa gctctaaagg atgaagccaa tcaaaaagac aagggaaatt      240
gcaaagaaga ttctttggca agttatgaat tgatatgcag tttacagtcc ttaatcattt      300
cggttgaaca gctccaggct agtttttctct taaatccaga gaaatatact gatgaacttg      360
ccactcagcc aaggcgactg cttaacacac tgagggaact caaccctatg tatgaaggat      420
atctacagca tgatgcacag gaagtattac aatgtatttt gggaaacatt caagaaacat      480
gccaactcct aaaaaaagaa gaagtaaaaa atgtggcaga attacctact aaggtagaag      540
aaatacctca tccgaaagag gaaatgaatg gtattaacag catagagatg gacagtatga      600
ggcattctga gactttaaa gagaaactcc caaaaggaaa tgggaaaaga aaaagtgaca      660
ctgaatttgg taacatgaag aaaaaagtta aattatccaa ggaacaccag tcattggaag      720
agaaccagag acaaactaga tcaaaaagaa aagctacaag tgatacatta gagagtcctc      780
ctaaaataat tcccaagtat atttctgaaa atgagagtcc aagaccctca caaaagaaat      840
caagagttaa aataaattgg ttaaagtctg caactaagca acccagcatt ctttctaaat      900
tttgtagtct gggaaaaata acaacaaacc aaggagtcaa aggacaatct aaagaaatg      960
aatgtgatcc tgaagaggac ttgggggaagt gtgaaagtga taacacaact aatggttgtg     1020
gacttgaatc tccaggaaat actgttacac ctgtaaatgt taatgaagtt aaacccataa     1080
acaaaggtga agaacaaatt ggttttgag cctagtggag aaattatttc aagggtcagc     1140
ttggtattaa aggcgccgtt gctttggaat gtgaaagttt aacnggaaag gaagagaaga     1200
ttttcaagac atcagtgtgc cagtacaaaa aagatgaact tttccaagta aaagaaagtt     1260
cttgaaattt ttccgaaccc aaaac                                           1285
```

<210> 382
<211> 658
<212> DNA
<213> Homo sapiens

<400> 382
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ctgaaattga tcaagttgtt cctgcagcac agtcttcacc tataaactgt gagaagagag       60
aaaacttgtt accatttgtg ggactgaata atctcggcaa tacttgctat cttaatagta      120
tacttcaggt attatatttt tgtcccggtt ttaaatctgg agtaaagcac ttatttaata      180
ttatttcaag gaagaaagaa gctctaaagg atgaagccaa tcaaaaagac aagggaaatt      240
gcaaagaaga ttctttggca agttatgaat tgatatgcag tttacagtcc ttaatcattt      300
cggttgaaca gctccaggct agtttttctct taaatccaga gaaatatact gatgaacttg      360
ccactcagcc aaggcgactg cttaacacac tgagggaact caaccctatg tatgaaggat      420
atctacagca tgatgcacag gaagtattac aatgtatttt gggaaacatt caagaaacat      480
gccaactcct aaaaaaagaa gaagtaaaaa atgtggcaga attcctacta aggnagaaga      540
aatcctcatc cgaagaagaa atgaatggtt tacagcatan agatggcnag atgagncttc      600
tgnagacttt taagagaact cccaaaggaa tggggaaaga aaaagtgccc tggatttg      658
```

<210> 383
<211> 721
<212> DNA
<213> Homo sapiens

<400> 383
```
agttaagcag tttaaatttt attgacctcc cagttttaa aaaaagttaa atttaaggtc       60
acacctctaa gtttgatgta ctatatacag atcgtgcaga atatgagtta aacagataca      120
aattagtcca tgcccaaaaa gatatactag ggtacagaat catcttcata aatacatata      180
aaattcttgt gtagaagcga actgtccagg ttttctgaga cacttctaag tgaatcaagg      240
cacaaaatgt acatacacca ttgtgaatac acacattcta gactttgtgc ctctgacata      300
gcccaaggat ttagcttcat gactcttata aaactaaatg tactgaatga gattctgctt      360
cttgggtgaa aaaccacagg aactataaac atcatgtaga taattactcc aaaatatgga      420
gaatacaaat acgagcactt tattttaaaa agcaaacaca aaagactggt gtaaatccaa      480
gtgtttaaat gcctccgttt tggataattt aattaagaac cgatcaagtt tgttcccaga      540
agctaatgca tcactagtct ctactgagga aaatgagttc taaaaattaa catgggtttc      600
agtaattcan atttcactat ttatnttaaa aacctagagg ggaccnatta tttncngta      660
gcttcnaaag ataaactaaa gattctttga tgtaatcact tttnccaatg gttgggatgg      720
g                                                                     721
```

<210> 384
<211> 812

```
        <212> DNA
        <213> Homo sapiens

        <400> 384
 5      gaaacatgcc aactcctaaa aaaagaagaa gtaaaaaatg tggcagaatt acctactaag      60
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        agtatgaggc attctgaaga ctttaaagag aaactcccaa aaggaaatgg gaaaagaaaa     180
        agtgacactg aatttggtaa catgaagaaa aaagttaaat tatccaagga acaccagtca     240
        ttggaagaga accagagaca aactagatca aaaagaaaag ctacaagtga tacattagag     300
10      agtcctccta aaataattcc caagtatatt tctgaaaatg agagtccaag accctcacaa     360
        aagaaatcaa gagttaaaat aaattggtta aagtctgcaa ctaagcaacc cagcattctt     420
        tctaaatttt gtagtctggg aaaaataaca acaaaccaag gagtcaaagg acaatctaaa     480
        gaaaatgaat gtgatcctga agaggacttg gggaagtgtg aaagtgataa cacaactaat     540
        ggttgtggac ttgaatctcc aggaaatact gttacacctg taaatgttaa tgaagttaaa     600
15      cccataaaca aaggtgaaga acaaattggt ttttgagcct agtggagaaa ttatttcaag     660
        ggtcagcttg gtattaaagg cgccgttgct ttggaatgtg aaagtttaac nggaaaggaa     720
        gagaagattt tcaagacatc agtgtgccag tacaaaaaag atgaactttt ccaagtaaaa     780
        gaaagttctt gaatttttc cgaacccaaa ac                                    812

20      <210> 385
        <211> 676
        <212> DNA
        <213> Homo sapiens

25      <400> 385
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        ctggattttt ctgtcagctg gaggatgcat ttctgacccc atcccagaca cgtgaaagca     180
        gaagacatga tgcatctata ataatgaaag cacaatctaa agagtattat cacaccgtga     240
30      acagcttctt cctgacccag agcaaatatt aagagaaaga caatatattt acaaacaaga     300
        tttaataatg ctcacaagaa tagagtttgc ccccaaatgg aaaattacac attattttgt     360
        ttcaaaaagt tataaatta gtgcttgaaa aatccagcag gtaagtagaa ggactaacag     420
        ggtctgtttc tggaactgtc cgccagcaaa tgagcatgct ctgtcctgga agccattttt     480
        ctttttcttt ctttttttt ttctttgaga cagagttttt ttgctcgttg cccaggctgg     540
35      agtacaaagg tgcaatctcg gctcaccaca acctccgccc cttgggttca agcaattctc     600
        ctgcctcagc ctcctgagca gctgggatta caggcatgtg ccaccacgcc tggctaactt     660
        ttctgtattt tcagta                                                     676

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40      <211> 714
        <212> DNA
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        <400> 386
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        tcccaaaagg aaatgggaaa agaaaaagtg acactgaatt tggtaacatg aagaaaaaag     180
        ttaaattatc caaggaacac cagtcattgg aagagaacca gagacaaact agatcaaaaa     240
        gaaaagctac aagtgataca ttagagagtc ctcctaaaat aattcccaag tatatttctg     300
50      aaaatgagag tccaagaccc tcacaaaga aatcaagagt taaataaat tggttaaagt     360
        ctgcaactaa gcaacccagc attcttttcta aattttgtag tctgggaaaa ataacaacaa     420
        accaaggagt caaaggacaa tctaaagaaa atgaatgtga tcctgaagag gacttgggga     480
        agtgtgaaag tgataacaca actaatggtt gtggacttga atctccagga atactgtta     540
        cacctgtaaa tgttaatgaa agttaaaccc ataaccaag gtgaagaaca aattgggttt     600
55      tgagctagtg gagaaattat ttcaaggncc agctngtatt aaggcccctt gctttggaat     660
        ggggaaaggt ttacccgaaa ggaagaagaa gattttccag gacattcggt ggtg           714

        <210> 387
        <211> 1109
60      <212> DNA
        <213> Homo sapiens

        <400> 387
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130

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        ggcatacagg agattgcatt gcattcaggt gaagaaccac atgctgagga acacctgaaa       180
        ggtgactttt acgaaagtga acatggtata aatatagacc ttaatataaa taatcattta       240
5       attgctaaag agatggaaca taatacagtg tgtgctgctg gtactagtcc tgttggggaa       300
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        taccctggtg ttagtgaagc tgatgcagga gaaactctat cttctactgg tccttttgct       420
        ctggaacctg atgcaacagg aactagtaag ggtattgaat ttaccacagc atctactctc       480
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10      atggtaattt ccaccagtcc tagtggtggt agtgaagctg acattgaagg gcctttgcct       600
        gctaaagata ttcatcttga tttaccatct aataataacc ttgttagtaa ggatacagaa       660
        gaaccattac ctgtaaaaga gagtgaccag acattagcag ctctgctcag ccctaaagaa       720
        agtagtggag gagaaaaaga agtacctccc cctcctaaag agacactgcc tgattcagga       780
        ttttctgcca atattgagga tattaatgaa gcagatttag tgagaccgtt acttcctaag       840
15      gacatggaac gtcttacaag ccttaaaagc tggcatttga aggacccttta cttgcaagtg       900
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        agaactttca gaggtctttn tttcagangg aaaaaggatt gattnttgaa aatttttttgt      1020
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        taanggggggg gggaaaggag gaaagaaaa                                       1109
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                <211> 823
                <212> DNA
                <213> Homo sapiens
25
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        cagtattgga tacctaccct ggtgttagtg aagctgatgc aggagaaact ctatcttcta       120
        ctggtccttt tgctctggaa cctgatgcaa caggaactag taagggtatt gaatttacca       180
30      cagcatctac tctcagttta gttaataaat atgatgttga tttatcttta actactcaag       240
        atactgaaca tgacatggta atttccacca gtcctagtgg tggtagtgaa gctgacattg       300
        aagggccttt gcctgctaaa gatattcatc ttgatttacc atctaataat aaccttgtta       360
        gtaaggatac agaagaacca ttacctgtaa aagagagtga ccagacatta gcagctctgc       420
        tcagccctaa agaaagtagt ggaggagaaa agaagtacc tcccccctcct aaagagacac       480
35      tgcctgattc aggattttct gccaatattg aggatattaa tgaagcagat ttagtgagac       540
        cgttacttcc taaggacatg gaacgtctta caagccttaa aagctggcat ttgaaggacc       600
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        tagtatgccc agaaagaact ttcagaggtc tttntttcag anggaaaaag gattgattnt       720
        tgaaaatttt ttgttaaaag nttaaagggc ccctccccga aaaaaaagcc aggaaaaatt       780
40      aangaacccg gggntaangg ggggggaaa ggaggaaaga aaa                          823

                <210> 389
                <211> 679
                <212> DNA
45              <213> Homo sapiens

                <400> 389
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        atatgaatac cactgtaata cacatgaaat attctatcag accctaaaaa ttaacataaa       120
50      ctttttaactt tctcatagtc aacaaaatag tggctggttg ccaattttat tagataagtt       180
        ggttacagca ttttaattat cattttacgt ctatctaggn gtagctgaaa ttcaaaatgc       240
        acatcaaagt aaaactatat cacaactaa tgccatacta aatgtacttg gcctctgcaa       300
        tagaattcta gtcagacttc attttttact ccctttcttat gacccaagtg gctttaacag       360
        gaatgcagga cttagtgctg atcatcacac aacataccac tttcttttta gaacctctac       420
55      aaaattttga ggggatggtg nggcattagc cctgtggaac agatcttgat cacctcaata       480
        acactggccc attatctgtc cagcagaacc cattgtgaaa tagtacaagg ngcacagcct       540
        tcactgatta caggcaagtg gttacagtag cctaaccnta anggaagggg aggtccatct       600
        tagtacaaaa atcnagttta aaagcggttt ttaacattcc ncactggaaa ataccttttgg       660
        tgcctttaaa cagtcgttt                                                    679
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                <210> 390
                <211> 664
                <212> DNA
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       <213> Homo sapiens

       <400> 390
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       ggcatacagg agattgcatt gcattcaggt gaagaaccac atgctgagga acacctgaaa     180
       ggtgactttt acgaaagtga acatggtata aatatagacc ttaatataaa taatcatttа     240
       attgctaaag agatggaaca taatacagtg tgtgctgctg gtactagtcc tgttggggaa     300
       attggtgaag agaaaatttt gcccaccagt gagactaaac agcgcacagt attggatacc     360
       taccctggtg ttagtgaagc tgatgcagga gaaactctat cttctactgg tccttttgct     420
       ctgaacctg atgcaacagg aactagtaag ggtattgaat ttaccacagc atctactctc     480
       agtttaagtt aataaatatt gatgttgatt tatctttaac tactcaagat actgaacatg     540
       acatggtaat ttccaccagt cctantggtg ggtagtgaaa cctnacattg aagggcctt     600
       tgcctgcnta aagaaattca atcttggatt taccatctaa tataaccctt gttagtaaag     660
       gatc                                                                  664


       <210> 391
       <211> 650
       <212> DNA
       <213> Homo sapiens

       <400> 391
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       anactatntc acaactcaat gccatactaa atgtacttgg cctctgcaat anaattntag     180
       tcngacttca ttttttactc ccttcttatg acccaagtgg ctttaacagg aatgcaggac     240
       ttattgcnga tcntnacaca acataccact ttctttttag aaccttnaca aaatnttgag     300
       ggnagatggt ggcattagcc ctcgtggaan agatnntgnt cacctcnata acnctggccc     360
       attntctntc cagcnnaacc cattnngaaa tanncaaggg gcncagccct tcctgnttac     420
       aggcaaantg ttncagtnnc ctaccntaag gnaggggagt tcatccttnn naaaacnntg     480
       gngttanngc gtnntttaan attccccact gaanaatacc ctgatncctt tcaaacagtc     540
       gtttggatgt tngcccntta ancaaancnt nacttangnn gaacnatttt nacttaccaa     600
       aacctgtttg gtgtaaanac aatttccatg gngncaaaaa attaaangcc                 650


       <210> 392
       <211> 1257
       <212> DNA
       <213> Homo sapiens

       <400> 392
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       ggctgggcgc tggcggcgga agccccgaga agagcccgag cgcgcaggag ctcaaggagc     180
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       cacgtccggg gcccagcagg cttgcattga ggccaagcac gacaagtaca tggcggacat     720
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       ctggccaccc cgaccgcttc ccccaagttc tgctgttgga ctntggactg tttcccctct    1140
       cagcatcgct tttgctgggc cgtgatcgtc cccctttgtg ggctggaaaa gcaggtgagg    1200
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        <211> 837
        <212> DNA
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        ttggttggta atgtgacac tcgagaagaa gcagcgaaag acatttgtgc cacaaaagtt    180
        gaaactgaag aagctactgc ttgtttagaa ctaaagttta atcaaattaa agctgaatta   240
10      gctaaaacca aaggagaatt aatcaaaacc aaagaagagt taaaaaagag agaaaatgaa   300
        tcagattcat tgattcaaga gcttgagaca tctaataaga aataattac acagaatcaa    360
        agaattaaag aattgataaa tataattgat caaaagaag atactatcaa cgaatttcag    420
        aacctaaagt ctcatatgga aaacacattt aaatgcaatg acaaggctga tacatcttct   480
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15      tctaaaatct gttcagaaag aaaaagagta aatgaaaatg aacttcagca agatgaacca   600
        ccagcaaaga aagggtctat ccattgtagt tcagcttcac tgaagaccaa aagaaaagtg   660
        gaagaagtgc gacccgaaca ttgcagaaaa ttgaagacan tcagagtttt acaaggaaaa   720
        ataatgaagg gactggagag cattttttcc tcactatttg agaatgacct taaaaaatga   780
        aaagggaaga aaaagccgaa ttnaataaac ccgattggtc attttcaacc aggaacc     837

20
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        <211> 722
        <212> DNA
        <213> Homo sapiens

25
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        attccttcaa atttctttct agctttaaga tgatagattc cttttccaaa atgtcttgtt   180
30      ctaacttggc tgaatgacta cattcaactt tctgagtctc taaaattgtt tcaagttcct   240
        ttattttgc cttatagcaa gtaacacctt gtgtaagttc tgaaagcgct ctctttcctt    300
        caactacatg ctgtatttga acatcaagag taacatttt ttcttgcaat tcttctttca    360
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        aattcgaaat tctttaactt gcttacttac ccaanaatca ttaccctaaa anggctaact   660
        ggggtttttg gcaaaatatt ctnctcaaaa ccatttggaa aaaccctggn gaatgggcca   720
        aa                                                                  722
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        <211> 712
        <212> DNA
        <213> Homo sapiens

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        ctgttaatca gctcaaagat ttgttgcgcc aacaagcaga taaggaaagt gaagtatctc   360
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        agggaacaac cttctgatgc atccggaaca tgccaattct ggttacacag gngaaattct   660
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60      <210> 396
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        <212> DNA
        <213> Homo sapiens
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133

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        acttttggca aaaaatgtat tcttggggan gncagcnacc naaataccgg ntcaatttc       720
15      aagttttgnc aatgcctggg ctttccantt tgctggaatc ttttgggg                   768


        <210> 397
        <211> 721
        <212> DNA
20      <213> Homo sapiens


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25      aacaggaaat aaagcagaag acacaaaagg aaccgaatgt gttaaaagta ctcctgtcac       180
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        acgaaatgat gaaggaaaag taattcggtt ccattgtaaa ttatgcgagt gcagctttaa       360
        tgatcccaat gctaaggaga tgcacttaaa agggcgaaga cacagacttc aatataaaaa       420
30      aaaagtaaat ccagatttgc aagtagaagt aaagcctagt attcgagcna gaaagattca       480
        agaagagaaa atgaggaagc aaatgcngaa ggaggagtac tggcgaaanc naaaagaaaa       540
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        angaagaaca acattatttg ggatgatcgc cncnaatgcc naatngaggt nttctcatgg       660
        ncctcnaggc cattaggcct tntgggagtc caacagcatg cctctnanac ttaaggggct       720
35      g                                                                      721


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40      <213> Homo sapiens


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45      ctgtagtgct gtgacaacaa aatgacatct gtgtaccaga gcatacatat atcaacagta       180
        agatgtaatt tttcattaca tcactgctag aatatttagc tttgtgtagg agacataagc       240
        aggtaagatg gccacaccaa ataattttct gttttttcc ttagataatt ttttatcagt       300
        aatactttat caacctcact gttaacagaa ctgtaaatta tctgggtgat ggggtgtgtg       360
        gagaagatca tctgtgttat actgtaatag ttgctagagt aatctcacac acaccaataa       420
50      ggaactgtca ccataattaa gggctagtta ctgttgttag ttgtacaatg atgaagttct       480
        tttgaaaata ttggttagcc cacttatatg tgaaaaatgc cctttccact tatacacaag       540
        aaaaaaatat tcagaaagtt atttttggcc ttgctatgtc aaaaagtcaa ctgtacaaag       600
        atctaccgtg ttaaacctaa aattatgatt ttnaaagtct attaaaaaac aagaatgtca       660
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55      tattagcttt tatactgggt aa                                               742


        <210> 399
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60      <213> Homo sapiens


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     tgaagaaagc aagcaggagt gttggctcag tgcctaaagt gtctgcaata agtaaaacgc    120
     aaacagcaga aaaaattaaa cctgaaaaca gctcttcagc atctacggga ggcaaacttg    180
     taaaacctgg aacagcagca tcattgtcaa agaccaagag cagtgatgac cttttagctg    240
     gaatggccgg aggggtaacg gtgactaatg gtgttaaagg aaagaaaagc acctgcccat    300
  5  ctgcagcacc ttcagcatct gcccctgcca tgaccaccgt ggagaacaaa tccaagatta    360
     gcacaggcac agcttcttca accaagcgga gcacttctac aggtcaggga gctaatgaca    420
     tggcattggc caaacgttcc cgcagtcgaa ctgctacaga atgtgacgtt cgtatgagca    480
     agtcttagtc agacaatcaa gatcagtgac aganctgctt tggaggccaa agtgaangat    540
     cttntnncgc tggccaaaac caaagacgta gaaattttac attttgagaa aatgaactgg    600
 10  gaganatgcg tgccccactn ggcattaatg aangatcatt tttganggga gntgaaaaaa    660
     tcttgagaaa ggaaact                                                    677
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          <210> 400
          <211> 670
 15   <212> DNA
          <213> Homo sapiens

          <400> 400
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     aattaataga ggcagaagga atagaagata tagaaaaaga ggacatcgaa agtcaggaaa     60
 20  ttgaagctca agaaggtgaa gatgatacct ttctaacagc ccaagatggt gaggaagaag    120
     aaaatgagaa agatatagca ggttctggtg atggtacaca agaagtatct aaacctcttc    180
     cttcagaagg gagcctagct gaggctgatc acacagctca tgaagagatg gaagctcata    240
     cgactgtgaa agaagctgag gatgacaaca tctcggtcac aatccaggct gaagatgcca    300
     tcactctgga ttttgatggt gatgacctcc tagaaacagg taaaaatgtg aaaattacag    360
 25  attctgaagc aagtaagcca aaagatgggc aggacgccat tgcacagagc ccggagaagg    420
     aaagcaagga ttatgagatg aatgcgaacc ataaagatgg taagaaggaa gactgcgtga    480
     agggtgaccc tgtcgagaag gaagccagag aaagttctan gaaagcagaa tctggagacc    540
     adagaaaaang atacttttga agaaanggnc ctcgctactg gggccctctg gtcaaagcca    600
     aaagagctct tcaaanggaa ttcttaaaga cagccaagga catcatctta aggatgacca    660
 30  aaaggaaagt                                                            670
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          <210> 401
          <211> 709
          <212> DNA
 35   <213> Homo sapiens

          <400> 401
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     canatttctc agacgatctt ttctcttctt ttttgacaga ggcttgtgtc ttgctacttc     60
     tatcactcgt attttttta tctccagaac ttcttgaact actcttttca tcattttctt    120
 40  tcttcatttc tttcttagag ggatcacctt ttactttttc aacagaaatc agctgtccat    180
     gcagctcagt gcgatgaana tgtgcaatac acctggacac ctctgtgctt gaagacatag    240
     ttacaatgcc atagcatttt gccccaggac ttcgagcatt tgtaactact tttgcactca    300
     gaacctttcc atatttgcca aagaggttct tcaaatcagc agctttggta ttagatgaaa    360
     gtccactaac ccanatattt ttagttgagc ttncactgct accactagta ctacttgnac    420
 45  ttcctttgnc atctttagat gatgtcttgc tgtctttaga ttcctttgaa gagctctttg    480
     cttgaccana ggccccagta gacgagggcc ctttcttcaa agtatccttt tctttgtctc    540
     cagattctgc tttcttagaa ctttctctgg cttccttctc gacagggtca cccttcacgc    600
     agtcttcctt cttaccatct ttatggntcg cattcatctc ataatccttg ctttccttct    660
     ncgggctntg ngcaatggcg gnccggccca tcttttggct tacttgctt                709
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 50   <210> 402
          <211> 697
          <212> DNA
          <213> Homo sapiens

 55
          <400> 402
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     gctgcctccg ccgccgcggg gcacannttt gggcanggag cccatcgagg ggcncgcgng     60
     ggcgcgggca tgggactgcg ccggatccgn ngacagcatg ganccaagcg gcccgggccc    120
     tgagcgcgta ttctccgggg ggcctcgccc tcctgctngc ggggccnggg ctcctgntcc    180
 60  ggttgctngc gctnatgctg gctgtngcgg cgnncagcat catgtngggt cgccgcatgc    240
     cctcgnngga gggagcangc ctgcncgagc gccaatggnc gangccntgt gagcccagac    300
     gtccgatanc tnttccgaag nngtgccnca accggggacg nggaangagt tnaacaggct    360
     ggtgactnct nnnaaangag aacannctcn anccngcgg gctggaaanc caccccnntg     420
```
                                        135

```
        natttnacng aaanttttgg gcgnaaanac anaagttnaa natttgcttc aaaatgggtg    480
        caaatntcca aacacctgat agatgggagg ccttattcct cttaataagg catcctnttt    540
        ttggtatatt cctngaaaat aatngaantn ttnctttttg aagannttgg gncnataccc    600
        ccaattgcnt tgaaaataan ttggaaatta ntactncctn ttcatgaaan cctnnaattt    660
 5      aaaanggaaa nnanttgant ggtttnncca nttgttc                              697


           <210> 403
           <211> 623
           <212> DNA
10         <213> Homo sapiens


           <400> 403
        gctcgggctg cggggctccg gctgcgggcg ctgggccgcg aggcgcggag cttgggagcg     60
        gagcccaggc cgtgccgcgc ggcgccatga agggcaagga ggagaaggag ggcggcgcac    120
15      ggctgggcgc tggcggcgga agccccgaga agagcccgag cgcgcaggag ctcaaggagc    180
        agggcaatcg tctgttcgtg ggccgaaagt acccggaggc ggcggcctgc tacggccgcg    240
        cgatcacccg gaacccgctg gtggccgtgt attacaccaa ccgggccttg tgctacctga    300
        agatgcagca gcacgagcag gccctggccg actgccggcg cgccctggga ctggacgggc    360
        agtctgtgaa ggcgcacttc ttcctggggc agtgccagct ggagatggag agctatgatg    420
20      aggccatcgc caatctgcag cgagcttaca gcctggccaa ggagcagcgg ctgaacttcg    480
        gggacgacat ccccagcgct cttcgaatcg cgaagaanaa gcgctggaac agcattgagg    540
        agcggcgcat ccaccaagaa agcgagctgn acttctacct nttcangctt attgccgcng    600
        accgtganaa ggaaacttga aaa                                            623


25         <210> 404
           <211> 703
           <212> DNA
           <213> Homo sapiens


30         <400> 404
        cgtgctcacg gattttatta cacagatagn ggcggcaatg gcctcagccc agcccaccct     60
        cacctgcttt tccagcccac aaaggggggac gatcacggcc cagcaaaagc gatgctgaga    120
        ggggaaacag tccanagtcc aacagcagaa cttgggggaa gcggtcgggg tggccaggaa    180
        cataaactat gtataggggc cggggggcttc tgcccagggc tccctggac caggacgcca    240
35      ggtagggcag ggaacctcag tagtcctcca cccagccatt ctcagagatg aatgcgtcaa    300
        taacctcctt catagccaag ttggggatga gctgttcctg ggtcagggg ctccgggtca    360
        cggggtcaaa atgacccaca cgctgcaggt gctcctcgat gtccttgcgg tcgtaggtga    420
        tgccactggg cgtgatgcac ggctcccgca tcggctcaaa gctgatcttg ccacacaggt    480
        aagtcgggga tgtctcgctt cttcctcttt catccacctg aaaaaaaaag ctcgtccatg    540
40      tccgccatgt acttgtcgtg cttggcctca atgcaagcct gctgggcccc ggacgtggct    600
        tgtcgtcctc atacccctcg tggtttcctt ggcactnttt cancttcctt tcacgcttcc    660
        gcgggaatta acctggaaag gaagaatgca cttccntntc tgg                      703


           <210> 405
45         <211> 700
           <212> DNA
           <213> Homo sapiens


           <400> 405
50      aacctcaaag gaattctaga agaatctcca tctgaagcag aagatttcat ttctggaatt     60
        acacagacta tggtagaagc tgtagctgaa gtagaaaaaa atgaaactgt ttcggaaata    120
        ttgccatcaa cttgtattgt gacgttagta ccaggaattc ccactgggga tgagaagaca    180
        gtggacaaaa agaatatttc tgaaaaaaaa ggtaacatgg atgaaaagga ggagaaggaa    240
        tttaatacta aggaaaccag aatggatctt caaataggaa cagagaaggc tgaaaagaat    300
55      gaaggtagga tggatgcaga aaaggtggaa aagatggcag caatgaaaga aaagcctgca    360
        gaaaacactt tattcaaggc atacccaaat aaaggagtgg gtcaggctaa taagcctgat    420
        gaaactagta aaactagtat tctggctgta tcagatgtat ctagcagtaa accaagcatc    480
        aaggctgtta tagtctcttc tcctaaggca aaagctacag tttcaaaaac tgaaaatcag    540
        aaaagttttc caaaatctgt gcccagagat caaataaatg ctgaaaagaa actttcagcc    600
60      caangaattt ggtctgctta aacccacaag tgccangtca ggctttggca gaaagccagc    660
        agtaaattca aacctactca gagccagtct taccaaagga                          700


           <210> 406
```

<211> 725
<212> DNA
<213> Homo sapiens

5

<400> 406
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cctgatgatt tgatataaaa atcaaaccca tcatactttc cccatcagtc tctctacatt     120
tagggcaatc agaaatttgt acaacacgaa tatttgcttc tgaaacgaaa attacaaatt     180
aaatgataac aaaaatacac aaatcaactg gaccctaaac aaatttctag tgaattcttt     240
```
10
```
cctttccccc aatcacctag agcttctttc ttcagcctca ttctgctcct tttccttttct     300
ttgcttggcc atgaatttct cagtattttg cttatgacgt gtactcttgc agtgatttgt     360
cattgttttt tcacctgagt agaagaggga acaaattgga cagaagaatc cagccttagg     420
tcaagaaagt ctaattcctc agggacatca gacgccactg atttgcctga agaagagtct     480
tcagtcttct tgcgttttcg ctctggttct gaatccttta atccagattc ctcatcaact     540
```
15
```
tcactcatct ggaaggcctc ttcacctttt gctggtctg cacaacagct ttttctgatg     600
gcagagtttt ccaattctaa ctctctttgg gtggagttta gctgttaaan gnctttcnat     660
catgggtttt agancttctt ccataacatt ctcatttact gggcccactt tgggacaagg     720
attca                                                                  725
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20
<210> 407
<211> 761
<212> DNA
<213> Homo sapiens

25

<400> 407
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ggtaataatg acttgttggt tgattgtaga tattgggctg ttaattgtca gttcagtgtt     120
ttaatctgac ncaggcttat gcggaggana atgttttcat gttacttata ctaacattag     180
ttcttctata gggtgataga ttggtccaat tgggtgtgag gagttcagtt atatgtttgg     240
```
30
```
gatttttttag gcagtgggtg ttgagcttga acgctttctt aattggnggc tgctttttagg     300
cctactatgg gtgttaaatt ttttactctc tctacaaggt ttttttcctag tgtccaaaga     360
gctgttcctc tttggactaa cagttaaatc agaatcatag gcatatgatt acaccctatg     420
gttatggaaa aaaacgaata ttcatattta gtattatgac ctaagtgtat atccaagctg     480
atcaattcat aacacttcag tgatgagatg tcagttgtac attcggctga actctcatca     540
```
35
```
taactatgtc ctttccaaag ataggctnta ttaaagaaca ggatgaatgg aataatataa     600
agtgattcta atgtggtttc attaagtacg tggcgtacca ttccatgttc naccttttga     660
catttatttt ctcatntcaa ccccttttta cacgtngaaa cacaatctcg ctcttgaagt     720
cttactgcct gannttggga aaccctgtat ttaatatttt c                         761
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40
<210> 408
<211> 737
<212> DNA
<213> Homo sapiens

45

<400> 408
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gnnacnnatt ctcgctctgn cncccnngct ggagtgcnaa ncnagantct ggntggattg      60
aatgatgnct gctgcntnat nagggnanat gggaatcctg ngccgcttta tgccattcnt     120
gaacnagtaa ttcttcacnc tggtatttta tgnctggngg cttcangaan aaancatgaa     180
ttttctnt aaaataanna ttctggtgac ccnnacnntt ggnaanantt tcaacntnag     240
```
50
```
gggatgctng gncnggccnc ctancntgan ttgngantaa anancngggc tggtggttct     300
ccnaaanaan nttcttacng nttggcnctc anganntttc nggttctgnn ttcncttttt     360
catattgnna tataccggtt tttaaanggg tattggaant aaatatcncc ncatttttct     420
cttttangnn aaganggtgc ntttttccnnt cnanaaaatg aanntcnatt ggtatcttgn     480
ntttggtggc ngctttnttn tgggcntnaa cnaattgcng gtgnagccnc atantttttgn     540
```
55
```
nttggaggtg aaaaaatttc tgaaccaaaa acnnctgcng ggtcnngngg ggttggtcnc     600
nttatcttgg tccgtttttgn ancnttngtt ccaacttccc tcatttggcc cttggnttcn     660
cngtgggcnn tttgggcnng ntccngnaaa cccatgnttt ttctttttaa anccnnntcc     720
cgncctaaat gganatt                                                     737
```

60
<210> 409
<211> 712
<212> DNA
<213> Homo sapiens

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        <400> 409
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        tcggctgagc caccgggtga gctcaccgcc cagcccaaac caggagattg cgagggagcg     120
   5    atgcggtgca gcgcgatttg cttgtaaatg catcacgaag aggcagccca gaatgaagaa     180
        agcaagcagg agtgttggct cagtgcctaa agtgtctgca ataagtaaaa cgcaaacagc     240
        agaaaaaatt aaacctgaaa acagctcttc agcatctacg ggaggcaaac ttgtaaaacc     300
        tggaacagca gcatcattgt caaagaccaa gagcagtgat gaccttttag ctggaatggc     360
        cggaggggta acggtgacta atggtgttaa aggaaagaaa agcacctgcc catctgcagc     420
   10   accttcagca tctgcccctg ccatgaccac cgtggagaac aaatccaaga ttagcacagg     480
        cacagnttct tcaaccaagc ggagcacttn tacaggtaat aaagaatcca gttctactag     540
        agaaagatta cgtgaacgta cccgattaaa ccagagcaaa aaactacctt ntgcaggtca     600
        nggagctaat gacatggcat ttggccaaac gntcncccaa ttgaactgnt tccaaaatgt     660
        gacgtttcgt ntganccaag tnttaagtca gaccattccn aatccagtga cn               712

        <210> 410
        <211> 563
        <212> DNA
   20   <213> Homo sapiens

        <400> 410
        cctcctcctt ctcctccttc ctnttcctnt tcttcttctt tctctctctc tcgtttttng      60
        ttttttggga ggggcagga nagggggggaa caggatttct ntntnttgnc caggctgaag     120
        ngcagnggng caatcttggc tcgctgnaac ctntgcctgg ganacanagn gatactccag     180
   25   cttaaaaaaa aaanggctgn gnnaaaacag caagttcctc ccaagggctc caaaaagttg     240
        ctgaccctca tnttccaaag tctnagctnt ntcagggtaa caaaactcag nccaaaaatt     300
        taaggaatgg gctttgaagt caggctgccc tgggctactg cttaanaact aactgngtta     360
        acctgaatng aattagttaa cttctttaan cctcattttn ggtntctata aaatgaggan     420
        gacaataata catntgccat gangaactgn gaaaacagtg cctacaatgg ggaccctctc     480
   30   tnttacccat tatnacagct ggcaggaaaa atgcattcat ttaacaactc ttnccccacn     540
        tngnaattaa aatatcctta cta                                               563

        <210> 411
        <211> 801
   35   <212> DNA
        <213> Homo sapiens

        <400> 411
        ctcaatgaga tttatacaaa gacagatagc aagtcaatca tgaggatgaa gagtggtcag      60
   40   atgtttgcca aggaagattt gaaacggaag aagcttgtac gtgatgggag tgtgtttctg     120
        aagaatgcag caggaaggtt gaaagaggtt caagcagttc ttctcactga cattttagtt     180
        ttccttcaag aaaaagacca gaagtacatc tttgcatcat ggaccagaa gtcaacagtg     240
        atctctttaa agaagctgat tgtgagagaa gtggcacatg aggagaaagg tttattcctg     300
        atcagcatgg ggatgacaga tccagagatg gtagaagtcc atgccagctc caaagaggaa     360
   45   cgaaacagct ggattcagat cattcaggac acaatcaaca ccctgaacag agatgaagat     420
        gaaggaattc ctagtgagaa tgaggaagaa aagaaaatgt tggacaccag accccgagaa     480
        ttaaaagaac acttcccaga aggccaaaaa atctctcttg tggaaagaag aaatgatttt     540
        ccggnatggc tgatgcaccc cctctccaga gattggtccc acccatagcc taagtntttt     600
        ccctccacac aaanagnttc aangngccct tatgaaaggc ataatgagng ngatcctcag     660
   50   gttnggggng gaatttggag naccttggcc gctgtacacc ccttggcaaa agtgcggccg     720
        ttcctnccci gagaanacct tgngnttgcc nctcaataat ctcaagngga aaggaaagga     780
        ttttgcccac tttggacggt c                                                801

        <210> 412
   55   <211> 735
        <212> DNA
        <213> Homo sapiens

        <400> 412
   60   attttgtaca gttggtattt ttaattctcc attttttgtt cacaaatgta gtcttcattt      60
        taatgaagaa gagaagtctg tgtttcttcc atgttgaact cctctgtcca cttctgcagg     120
        tcttgtgcat tatgcatcgt ccataacttt gcaaaatact tgagtctctt tcttttcgta     180
        tttattaatc cttccagctc ttttgacttg tgagctgctt tcttcaaaat ttctccagga     240
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acatctgcta gtttagccac atttaatcca taactccttg ctgcaattcc tctagttatt      300
tggtaaagga aggtgacaaa atcagggact tgttctgctg tgcctggatc cagtttgctt      360
tcatcctcac tgaccaagaa tcccatgtgg taattcccca cctggtgtga gtaatttttt      420
tctagttcac aaactggcgg ataatgggtg acaaacaggg ttaaggattt cacatctctg      480
atgaaatact caagtgtagc ataggcaatg gcaattccat catgaagtgc tcgtccctct      540
tcctaagttc atccaagata accaaggact gngatggtgc ttttctgatt atttctgctg      600
ngtcagtcaa gttcttccat aaatggactc cgtcctttat atatattggc tgcagcaccc      660
atncttgtga aaaatgccat cccacaatcc aatttgtcgc ttttttctgg cagggacctt      720
anggagccaa tctgg                                                       735
```

        <210> 413
        <211> 752
        <212> DNA
        <213> Homo sapiens

        <400> 413
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tcaacgggtc tcggctgagc caccgggtga gctcaccgcc cagcccaaac caggagattg       60
cgagggagcg atgcggtgca gcgcgatttg cttgtaaatg catcacgaag aggcagccca      120
gaatgaagaa agcaagcagg agtgttggct cagtgcctaa agtgtctgca ataagtaaaa      180
cgcaaacagc agaaaaaatt aaacctgaaa acagctcttc agcatctacg ggaggcaaac      240
ttgtaaaacc tggaacagca gcatcattgt caaagaccaa gagcagtgat gacctttag       300
ctggaatggc cggaggggta acggtgacta atggtgttaa aggaaagaaa agcacctgcc      360
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ttagcacagg cacagcttct tcaaccaagc ggagcacttc tacaggtaga ggatgaatac      480
cgagccttca agaagaagct aagaaacaaa ttgaagattt gaatatgacg ttagaaaaat      540
taagatcaga cctggatgaa aaagaaacag aaaggagtga catgaaagaa accatctttg      600
aacttgaaga tgaagtagaa caacatcgtg ctgtgaaact tcatgacaac ctcattattt      660
ctgatctaga gaatacaggt aaaaaactcc agganccaaa gcncgacatg ggaaagagaa      720
attaaagaca cttcccanga aaactttcgg aa                                    752
```

        <210> 414
        <211> 690
        <212> DNA
        <213> Homo sapiens

        <400> 414
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aacctttcct tatgagcatg cctgtgttgg gttgacagtg agggtaataa tgacttgttg       60
gttgattgta gatattgggc tgttaattgt cagttcagtg ttttaatctg acgcaggctt      120
atgcggagga gaatgttttc atgttactta tactaacatt agttcttcta tagggtgata      180
gattggtcca attgggtgtg aggagttcag ttatatgttt gggatttttt aggcagtggg      240
tgttgagctt gaacgctttc ttaattggtg ctgctttta ggcctactat gggtgttaaa      300
tttttactc tctctacaag gttttttcct agtgtccaaa gagctgttcc tctttggact      360
aacagttaaa tttacaaggg gatttagagg gttctgtggg caaatttaaa gttgaactaa      420
gattctatct tggacaacca gctatcacca ggctcggtag gtttgtcgcc tctacctata      480
aatcttcccc tattttgcta catagacggg tgtgctcttt tagctggtct taagtagctc      540
gtctggtttc ngggtctta nctttggctc ttcttgcaaa ggtatttcta gttaaatcat      600
tatgcanaag gnatangggg gtangtcctt gctatattat gcttgggtat taaattttna      660
tcttttcctt gcgggacta tntntttttg                                        690
```

        <210> 415
        <211> 1243
        <212> DNA
        <213> Homo sapiens

        <400> 415
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ctcacggaca agaacctcag ataggttaaa taggattgcg aatcaggtgg ccattcagcg       60
gaagaagcag tttgtggagc gagcccacag ctactggctg ctcaagcggc tgtccaggaa      120
cggggccccc ctgctgcggc ggctgcagtc cagcctgcag tctcagcgaa gctcacagca      180
gagagaaaat gatgaggaga tgaaggctgc caaagagaga ctgaagtact ggcagcggct      240
gcggcacgac ctggagcgcg ctcgcctgct gatcgagctg ctgcgcaagc gggagaagct      300
caagcgtgag caggtgaagg tggagcaggt cgccatggag ctgcggctga ccccgctgac      360
ggtgctgctg cgctcagtgc tggaccagct gcaagacaag gaccccgcca ggatatttgc      420
gcagcccgtg agtctgaagg aggtaccaga ttatttggat cacattaaac atcccatgga      480
```

                                  139

```
        ctttgccaca atgaggaaac ggttagaagc tcaagggtat aaaaacctcc atgagtttga    540
        ggaggatttt gatctcatta tagataactg catgaagtac aatgccaggg acaccgtgtt    600
        ctatagagcc gcggtgaggc tgcgcgatca gggaggtgtt gttctgaggc aggcccggcg    660
        cgaggtggac agcatcggct tggaagaggc ctcggggatg cacctgcctg agcggcctgc    720
    5   tgcggcaccg cggcggcctt tctcctggga agacgtggac aggttgctgg accccgccaa    780
        cagagcccac ctgggcctgg aggagcagct gagagagctg ctggacatgc tcgacctcac    840
        ctgcgctatg aagtccagcg gctcccggag caagcgggca aagctgctca aaaaggaaat    900
        tgcccttctc cgaaacaagc tgagccagca gcacagccag cccctgccca cggggccagg    960
        cttggaaggc ttcgaagagg acggagctgc gctgggcccc ggaggcgggc gaagaagtcc   1020
    10  ttccgaggtt ggagactctt ctgcagccaa ggaaaaggtc gcggagcaca tgcggagact   1080
        tncgangtgg aggaggagtn cccangaaaa gcgcctggac gcaggtcttc accaacngct   1140
        tttggggtgc naagagccaa ccangaaccc ggccgggggc cttgggggag gaaggccaca   1200
        ccccgacgac cttgggcctt cgagttcaag attttctttc aag                      1243
```

```
    15          <210> 416
                <211> 843
                <212> DNA
                <213> Homo sapiens

    20          <400> 416
        gtatcgtgga aagggagagt ggccactatg tggagatgca cgcccgctat atagggacca     60
        cagtgtttgt gcggcaggtg ggtcgctacc tgacccttgc catccgtatg cctgaagacc    120
        tggccatgtc ctacgaggag agccaggacc tgcagctgtg cgtgaacggc tgccccctga    180
        gtgaacgcat cgatgacggg cagggccagg tgtctgccat cctgggacac agcctgcctc    240
    25  gcacctcctt ggtgcaggcc tggcctggct acacactgga gactgccaac actcaatgcc    300
        atgagaagat gccagtgaag gacatctatt tccagtcctg tgtcttcgac ctgctcacca    360
        ctggtgatgc caacttract gccgcagccc acagtgcctt ggaggatgtg gaggccctgc    420
        acccaaggaa ggaacgctgg cacattttcc ccagcagtgg caatgggact ccccgtggag    480
        gcagtgattt gtctgtcagt ctaggactca cctgcttgat ccttatcgtg ttttgtagg     540
    30  ggttgncttt tgttttggnt ttttattttt tgctataaca aaattttaaa atatatattg     600
        ncataatata ttgagtaaaa gagtatatat gtatataccа tgtatatgac aagatgtttg    660
        tcctgggaca cccaccaaga ttgncatact gggtttggtt ggtttcacat atgttggatg    720
        tagggtcttt gaatggatca attttggttg gaggttctgn gaaangttta taatgtcctt    780
        gccaaggacc tggtanaaac actttatttt ttatatatta aanatttatg gggggcctgg    840
    35  gtg                                                                  843
```

```
                <210> 417
                <211> 1241
                <212> DNA
    40          <213> Homo sapiens

                <400> 417
        ggagcgcgca cagtcggctc gcagcgcggc actacagcgg ccccggcccg gcccccgccc     60
        ggccccggcg caggcagttc agattaaaga agctaattga tcaagaaatc aagtctcagg    120
    45  aggagaagga gcaagaaaag gagaaaaggg tcaccaccct gaaagaggag ctgaccaagc    180
        tgaagtcttt tgctttgatg gtggtggatg aacagcaaag gctgacggca cagctcaccc    240
        ttcaaagaca gaaaatccaa gagctgacca caaatgcaaa ggaaacacat accaaactag    300
        cccttgctga agccagagtt caggaggaag agcagaaggc aaccagacta gagaaggaac    360
        tgcaaacgca gaccacaaag tttcaccaag accaagacac aattatggcg aagctcacca    420
    50  atgaggacag tcaaaatcgc cagcttcaac aaaagctggc agcactcagc cggcagattg    480
        atgagttaga gagacaaac aggtctttac gaaaagcaga gaggagctg caagatataa    540
        aagaaaaaat cagtaaggga gaatatggaa acgctggtat catggctgaa gtggaagagc    600
        tcaggaaacg tgtgctagat atggaaggga agatgaaga gctcataaaa atggaggagc    660
        agtgcagaga tctcaataag aggcttgaaa gggagacgtt acagagtaaa gactttaaac    720
    55  tagaggttga aaaactcagt aaaagaatta tggctctgga aagttagaa gacgctttca     780
        acaaaagcaa acaagaatgc tactctctga aatgcaattt agaaaaagaa aggatgacca    840
        caaagcagtt gtctcaagaa ctggagagtt taaaagtaag gatcaaagag ctagaagcca    900
        ttgaaagtcg gctagaaaag acagaattca ctctaaaaga ggatttaact aaaactgaaa    960
        cattaactgt gatgtttgta gatgaacgga aaacaatgag tgaaaaatta agaaaactg    1020
    60  aagataaatt acaagctgct tcttctcagc ttcaagtgga gcaaaataaa gtaacaacag   1080
        ttactgagaa agttaattga ggaaactaaa agggcgctca agtcccaaac ccgtgttgaa   1140
        gaaaagatgt tcgccgttac ccaggagaga gatgattta aaaacaaat tgaagccgga   1200
        gaaaagaaag ggaatgtctc ctgtcaagag ttatatgttg g                      1241
```

<210> 418
<211> 1218
<212> DNA
<213> Homo sapiens

<400> 418
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tctgggaaga tggcgaaggt ctcagagctt tacgatgtca cttgggaaga aatgagagat    60
aaaatgagaa aatggagaga agaaaactca agaaatagtg agcaaattgt ggaagttgga   120
gaagaattaa ttaatgaata tgcttctaag ctgggagatg atatttggat catatatgaa   180
caggtgatga ttgcagcact agactatggt cgggatgact tggcattgtt ttgtcttcaa   240
gagctgagaa gacagttccc tggcagtcac agagtcaagc gattaacagg catgagattt   300
gaagccatgg aaagatatga tgatgctata cagctatatg ataggatttt acaagaagat   360
ccaactaaca ctgctgcaag aaagcgtaag attgccattc gaaaagccca ggggaaaaat   420
gtggaggcca ttcgggagct gaatgagtat ctggaacaat ttgttggaga ccaagaagcc   480
tggcatgaac ttgcagaact ttacatcaat gaacatgact atgcaaaagc agccttttgt   540
ttagaggaac taatgatgac taatccacac aaccacttat actgtcagca gtatgctgaa   600
gttaagtata cccaaggtgg acttgaaacc ctcgaacttt caagaaagtt tttgcacagg   660
cattgaaact gaacaacaga aatatgagag ctttgtttgg actttatatg cggcaagtca   720
tattgcttct aatccaaaag caagtgcaaa aacgaaaaag gcaacatgaa atatgctagt   780
tggcagctag tcaaataaac agagcttatc agtttgcagg tcgaagtaag aaggaaacca   840
aatattctct taaggctgtc gaagacatgt tggaaacatt gcagatcacc cagtcttaag   900
gtttcaaaaa ctctttgaca ttagatttca caactgcaca attgaactta ttggcctgta   960
acttatttac taaatgctca gtgctatttta tatactacag taattttctg ttaagaaggc  1020
agttgtaaag aatgtgttta tataaaccta aaaatgcctt ttactgctaa gtggggagat  1080
gggggaaatc catggaagag agatttaaga cttattgatt gtacatcagt ctcttcatat  1140
cacatataca tgtatatata taaaactcta atgtagtata accttgttaa ataaaccatg  1200
atgatttatt aaacttgc                                                 1218
```

<210> 419
<211> 810
<212> DNA
<213> Homo sapiens

<400> 419
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gccgggagtt ggagcctgcg gagttcgaga ccatgctgct gttctgcccc ggctgcggga    60
acgggctgat cgtggaggag ggacaacgct gccaccgctt cgcctgcaac acgtgcccct   120
acgtgcacaa catcacccgc aaggtaacaa atcggaagta cccaaaactg aaagaagtgg   180
atgatgtgct tggtggagca gctgcctggg agaatgttga ctctactgca gagtcgtgtc   240
ccaaatgcga acatcctcgt gcttacttca tgcagcttca gacccgctct gcagatgagc   300
cgatgaccac cttctacaag tgctgcaatg ctcagtgtgg acaccgctgg agggattagg   360
gccaggatgg cccagctgcc ctagtgtgtg cttgccttgt ccctcggggt agatgcttag   420
ctggcagtat gagttgtgtg tcctgagggt ctttgctagt gtggtggaaa gataaacctt   480
ttgaggtgaa gagccagggg gtcaggaaat atggcctatc tgccaggcag ggtggatgaa   540
gtcatgaatg tctgggagtt tttctgtgtg gggaggagac agagacccat aactaaatat   600
gctctgtgta aagtcctatt ctttcatctt ccactttatt ggcagttgac attcccttac   660
tcccaatcaa cactcttaaa tatttgtact gtttgtaaaa cttagtacat gtccctaaat   720
atttaactgt tacttgtaaa cttgtgtaat ttattattta ttttaatcaa aattctgaat   780
atttcattta aatgaaagtt ggaatattgc                                    810
```

<210> 420
<211> 1108
<212> DNA
<213> Homo sapiens

<400> 420
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gggggaggaa gaggagaaag gcncaggggt gggagctgtt gccgaagctg ccacagcaaa    60
agttctcccc cctccccct tcccctcctc tcaaggcccc tanaaaggtt ggagctgccg   120
ccgcctgcan tcggtgaccg cgcgactcgg cgcccgcccg cggatagagg gaggaatcan   180
cagcttggaa attcaagcac gtnatctggc gggatgggcg tttgcctaac gtatttaatg   240
gaggaatcgg atggcataag tgattaaggt ggtattgagg atttctgaag cctatgaaag   300
gtagaaactc aaccatgatt tcttttcaa ctctacagca ttccttcct tgaagtcttc   360
gtttttacct tagtctcggg cagttatact taagcatgaa cattgacgac aaactggaag   420
```
141

```
        gattgtttct taaatgtggc ggcatagacg aaatgcagtc ttccaggaca atggttgtaa        480
        tgggtggagt gtctggccag tctactgtgt ctggagagct acaggattca gtacttcaag        540
        atcgaagtat gcctcaccag gagatccttg ctgcagatga agtgttacaa gaaagtgaaa        600
        tgagacaaca ggatatgata tcacatgatg aactcatggt ccatgaggag acagtgaaaa        660
5       atgatgaaga gcagatggaa acacatgaaa gacttcctca aggactacag tatgcactta        720
        atgtccctat aagcgtaaag caggaaatta cttttactga tgtatctgag caactgatga        780
        gagacaaaaa acaaatcaga gagccagtag acttacagaa aaagaagaag cggaaacaac        840
        gttctcccgc aaaaatcctt acaataaatg aggatggatc acttggtttg aaaacccta        900
        aatctcacgt ttgtgagcac tgcaatgctg cctttagaac gaactatcct tacagagaca        960
10      tgtcttcttc atacaggtga aaaaccattt caatgtagtc catgngacat gcgnttcata       1020
        ccanaantac ctgctttaga gacattgaaa agattcntac tggtgnaaaa cccttttccc       1080
        ttgngaatga atgtgggttt gagaattc                                          1108


            <210>  421
15          <211>  680
            <212>  DNA
            <213>  Homo sapiens


            <400>  421
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        ttgggttaaa gaatacagaa aataatgacg tagagattag tgaaacaaaa aaggcagatg        120
        tgcaagcacc tgtaagccca tcagaaactt ctcaagctaa tccatattct gaaggacaat        180
        ttttagatga acatcatagt gtgaattttc atttgggtct caaagaggat aatgatacta        240
        ttaatgattc attaattgtt tctgaaacca aatcaaaaga aacactatg caagaatctc         300
25      ttccttctgg aatagtaaac tttagagagg aaatttgtga tatggattct agtgaagcaa        360
        tgtctcttga aagccaggag tcacctaatg aaaattttaa aactgttggc ccgtgtttag        420
        gagactcgaa aaatgtttca caggaatctt tggagacaaa agaagaaaaa ccagaagaaa        480
        ccccaaaaat ggaactgagt ctagagaatg ttctgttgaa ggaaatgcat gtaaagtaac        540
        agaatccaat ctagagaaag caaaaactat ggaattgaat gtaggaaatg aagctagctt        600
30      tcatggacaa gagagaaccc aaactggtat ttctgaagaa cngccnttga agaaaattaa        660
        agaaatggtg actctgaagc                                                    680


            <210>  422
            <211>  783
35          <212>  DNA
            <213>  Homo sapiens


            <400>  422
        gatatttcag tatttaatat atacaaaatg tttctattga acagaaccaa ggtattcaca         60
40      ataagctgca gaaaaaccca tgcaattaac aaagaatgaa atttataaat taaaaacatt        120
        gncgtctata cataatgtac aatcatgcat ttaaaaatga atactatacg tctcataaga        180
        ataaattttc agtcaactgc tgctgcatga atatttgcta atgcaaatga ataaaatctt        240
        agtaaattct gcattaatat tttaaccgcc agaagttgaa acttttctca ttttttcttga       300
        aagctgtcca aagttgacat atgcaggaaa aattcaaatt ctttcgcatt tcatttgagg        360
45      tttttaacca gtaacaaact tcctaaacct cagtcccaac aaacatgaat taaacaaaca        420
        aacaaacaaa aatataaaca cctttatcag ttcagcaaaa attcaaataa aaatgttcaa        480
        ttttacttaa agtattttac atgtttcacc agaatatgca cgggtttaag aaagcatgaa        540
        ataaaatgta agttctgtta ctagttttgc tttcacatct cagtaaagat aattaaattt        600
        cctgaaaaac cacgcatagc agccaagaat acatattatg aaaaaaaaaa angatcttac        660
50      tnatggactt acacattgaa cttacataat aatcctgncc ntcangggtt gnaatgtatc        720
        acctttgcaa gagctcttnt tgaaatggct ntattcanaa ctggttcccc atcaanaaat        780
        ccg                                                                      783


            <210>  423
55          <211>  767
            <212>  DNA
            <213>  Homo sapiens


            <400>  423
60      cctttctgaa cctgagaggt gacatcgggt ctcactggct gcagtttaag ctcttgacag         60
        aaatctcctc cgctgtgttt atattgactg acaatatcag taagaaggaa tacaaattgc        120
        tgtactccat gaaggagtca accacaaaat actacttcat cctgagtccc taccgtggga        180
        agcgcaacac aaacctgaga tttctgaata agttaattcc tgtgctgaaa atagaccact        240
```

```
        cacatgtcct ggtaaaggtc agcagcactg acagcgacag cttcgtgaag aggatccggg    300
        ccatcgttgg gaatgtgctg cgggcaccct gcaggcgggt atctgtggag gacatggcgc    360
        acgcagcccg caaactgggc ctaaaggtcg acgaggactg tgaggagtgt cagaaagcga    420
        aagaccggat ggagaggatt accaggaaaa tcaaagactc ggatgcctac anaaaggacc    480
5       agctgaggct gcangggac ccctggagaa aggcagccca agtggagaag gagttctgca    540
        acttcagtgg gccgtggccc ccctgagaan cacaaggctg actgaggcgg cgggtgcttg    600
        aacttntaat gcacaaaacc ggcatgatcc tctncggggn gcaggagtta tntcngggat    660
        aacaaccctc ctgagtgana caatcttctg aggggattga tgggccttgc accggtggcc    720
        ancccantta anaacctcgg aacctttac cttnacaaac acggggg               767

10
            <210> 424
            <211> 777
            <212> DNA
            <213> Homo sapiens

15
            <400> 424
        catttaacag acatttatta agcgtctaca atgtgccagg ccctggggac acagagctgg     60
        agaatgtaca gtccctgccc tcaaggagct cacagtctgg ggggacagac atgtaaacac    120
        atgagttaca acgcgctgcg tgaagtgtgt ggcanaggta taacaaagtg ctgtggggca    180
20      caacagagcg accagtgaac tnttcctggg caggggtcag ggaagccttc acagatcagt    240
        caataaatac ggtgccatgg gagtgccttg cacaccacgg gcactcacat cttgaatgct    300
        ggtccactgg aggcccttgg gttgggcggg agcaaggcct acttctgctt cctcaggaca    360
        acttccccac ctntgtcctg ggaccacctg cccgcctggg cctgcagtga ctaaggacgc    420
        tgctcccact ccaggggcca gtgacagana gcagctntac agagggccca ccccgcagga    480
25      tccttgacag gagctganac anaacaaact gctgcttgtc tncctaccct gggggctgng    540
        atattcttgg taacatcttt taaactggtc tgtgangtca ctttctnttt ttaacacttg    600
        ttganganaa ctncnaaacc tttgnctttt gctcggcttc tcatgtcgaa tgggcaccan    660
        ccatttttaa ggcnccaaaa cacaagcccc catgggtgc cccatttaaa aaangggttg     720
        gccacaanaa naccttctta aaccttgnaa ctggggtttt tttggacaan ttaaaag     777

30
            <210> 425
            <211> 771
            <212> DNA
            <213> Homo sapiens

35
            <400> 425
        gggtcccctg gtctcgctcc cccgcagatc ttgcatctca gcatgcgcct accacatcag     60
        ttgacattag cacagctttt ccattaggag aacgaagtga aactcctggt agaacggatg    120
        atggctctgc agaccgacat tgtggactta cagaggagcc ccatgggccg gaagcagggg    180
40      ggaacgctgg acgacctaga ggagcaagca agggagctgt acaggagact aagggaaaaa    240
        cctcgagacc agcgaactga gggtgacagt caggaaatgg tacggctgct gcttcaggca    300
        attcagagct tcgagaagaa agtgcgagtg atctatacgc agctcagtaa aactgtggtt    360
        tgcaagcaga aggcgctgga actgttgccc aaggtggaag aggtggtgag cttaatgaat    420
        gaggatgaga agactgttgt ccggctgcag gagaagcggc agaaggagct ctggaatctc    480
45      ctgaagattg cttgtacaag gtccgtggtc ctgtcagtgg aaaccccgat agcatgaatg    540
        cctctngact taccacctgg gcagcttatg tntaaccctt cacnggctca acaacttcct    600
        taccaccaaa aaantgaana actggtggnt tgagcactta accctgcncc ttctngaaaa    660
        tgccttnnag gcacttggan ggacaagacc aaagttnacc ggcctnactt gacttgttca    720
        aaatggaaaa aaaaacaaac tncttganca gcctcttatg tggggggactt a          771

50
            <210> 426
            <211> 737
            <212> DNA
            <213> Homo sapiens

55
            <400> 426
        cgcggcccgc cgcccccgcc tcaggtgaaa tgacaatgga tgctctgttg gctcgattga     60
        aacttctgaa tccagatgac cttagagaag aaatcgtcaa agccggattg aaatgtggac    120
        ccattacatc aactacaagg ttcatttttg agaaaaaatt ggctcaggct ttactggagc    180
60      aaggaggaag gctgtcttct ttctaccacc atgaggcagg tgtcacagct ctcagccagg    240
        acccacaaag gattttgaag ccagctgaag ggaacccaac tgatcaggct ggtttttctg    300
        aagacagaga tttttggttac agtgtgtggcc tgaatcctcc agaggaggaa gctgtgacat    360
        ccaagacctg ctcggtgccc cctagtgaca ccgacaccta cagagctgga gcgactgcgt    420
```

143

```
ctaaggagcc gccctgtcta tggggtgtgt ccagtgtatg aggacgtccc agcgagaaat    480
gaaaggatct atgtttatga aaataaaaag gaagcatttg caagctgtca agatgatcaa    540
agggtccgat ttaaagcttt ttctccanan aaaacgctga aaaatttgct naaagaattt    600
gtgaatattt ccttntccaa caaaacgtct ttacactntt tctgtgaaaa caacttcact    660
cttttcaatg acaagttgaa aaangttggc ttgncgaata aaacagcacc aanagccagc    720
gacagttcca aaatccc                                                   737
```

```
        <210> 427
        <211> 660
        <212> DNA
        <213> Homo sapiens


        <400> 427
aaggccaaaa cgttttactt tccatttgaa tttacaacca tatacagaca atatggtaag    60
attttagaga aaacagatca tcactacgaa tatccatatt ctgatttctt ttganaacca   120
aggtgccttt taaaatgcgg ctttttanaa tagcatgtgt tgtttctgtc tgggatctan   180
atcttgtctg ctacaaaaca aatgaacaca ccctgtgtaa caaaatcgaa ttttaacatt    240
taaatcttga ttccaatatt cctgacctat ctcttgtcat atgaaanaaa gaagcctttt    300
tttaaaacaa agtttcaatt cagaattttt acaaacaaaa acaatcctgc gtctacttaa    360
tatccctgta tatcctcaaa aagcaagttc aggaaattta aaaatgattt ataaaaggca    420
ctgaagttag caaaagcatt ggtgggtttt cattttggat taaacactgg aaatgttcac    480
agagaaacaa ctgtgtgagc agttgcccgt aacacacagg aagaaaccga cctccaggca    540
gcacctcctg aacacctcag cggntcctcc acattccaac cacaaacctt nattcaaagt    600
caaggggggaa ngcttcaagt cagccccggc aaagaaacca aaaaanggga ctcaaaccct    660
```

```
        <210> 428
        <211> 608
        <212> DNA
        <213> Homo sapiens


        <400> 428
gtcctcgagg ggccttcatg cagctcatca cagtggctga gggcttcagc caggacctgg    60
gctgtgacca catcctggtg atagactccg ggggcttgat aggtggggcc ttgacgtcag   120
ctggggacag atttgagctg gaggcttcct tggccactct gctcatggga ctgagcaatg    180
tcaccgtgat cagtctagct gaaaccaagg acattccagc agctattctg catgcatttc    240
tgaggttaga aaaaacgggg cacatgccca actaccagtt tgtataccag aaccttcatg    300
atgtatctgt tcccggccct aggcccagag acaagagaca gctcctggat ccacctggtg    360
acctgagcag ggctgcagcc cagatggaga acagggcga cggcttccgg gcactggcag    420
gcctggcctt ctgcgaccct gagaacaaca catctggcac atccagcctg tggcacggac    480
acctccatgg ccgcagtgag ctttggccta cagtgaaacc atatttgaat tgaagagatc    540
ctactcgaaa acatcaggaa cngnttgtcg aaccaaaaca aaaacattca caactnattg    600
acttgtga                                                             608
```

```
        <210> 429
        <211> 757
        <212> DNA
        <213> Homo sapiens


        <400> 429
catttaacag acatttatta agcgtctaca atgtgccagg ccctggggac acagagctgg    60
anaatgtaca gtccctgccc tcaaggagct cacagtctgg ggggacagac atgtaaacac   120
atgagttaca acgcnctgcg tgaagtgtgt ggcanaggta taacaaagtg ctgngggggca    180
caacanagcg accagtgaac tnttcctggg caggggtcag ggaagccttc acagatcagt    240
caataaatac ggngccatgg gagtgccttg cacaccacgg gcactacat cttgaatgct    300
ggtccactgg aggcccttgg gttgggcggg agcaaggcct acttntgctt cctnaggaca    360
acttccccac ctntgtcctg ggaccacctg cccgcctggg cctgcagtga ctaaggacgc    420
tgctcccact ccaggggcca gtgacanaga gcagctatac agagggccca ccccgcagga    480
tccttgacag gagctganac anaacaaact gctgcttgtc tccctaccct ggggggctgng    540
atattcttgg taacatctct gaagctggtc tgtgaggtca cttnctnttt taaacactgt    600
ttgaggagac tccaaaccct ctgtcttttg ctcgtcttct catgtcgaat tggggcacca    660
gccctttttt naggcnccaa anacacaacc cccccattgg gtgnccccat taaaaaaggg    720
gttgnccaca aaaaaccttc ttaaaccttg aactggg                            757
```

                                    144

<210> 430
<211> 757
<212> DNA
<213> Homo sapiens

<400> 430
```
cgccgcntgc ggtcgtctta tggatccaaa gaattcggnc gagagagcag gaaaatggac    60
tcattaggga ggcaggcagt cattaccact cacactgtac ttccagggag acaccgatta   120
taagaagaga aactcagcgc tggggaagaa gacaaataaa aagaagtgtt aagaattgcc   180
tttgggactc tgaaggctga agaattgatg aattgcaagt ttgtgcccca tagctgcaca   240
gactgcctga agttacattt agagactgaa atcactgcac cttaaaaaca aaagattgag   300
ctgcactgta ttcctaatgt ttcatcatta ctaacaggat attcctcatg acattgctgt   360
ctgatctttg accatcagtc tgtgacctgc cccttctctt tacatgcagc cgctctctgc   420
tccctgccca atgaacatct gcactaggcc caagccttgg agtaatttac ctgaagagtg   480
caccattgat tttgaaacta ctgaagaaac ccaagacagc tgaaaaccan aaggctctga   540
ggagaatgag attactcncc cggtggatcc agcgccaacc gggccttcct gctgaacttt   600
gaactgtttg tttcagancc acccttattc ctcacacatt nactgacaan tntacgctca   660
accgggtatt tgatgtgaat cnttgcangg gatgaccacg cnttncagat taaccttcaa   720
ntttaanaat tcggctcgaa ccttaaacag gcaaccg                            757
```

<210> 431
<211> 719
<212> DNA
<213> Homo sapiens

<400> 431
```
aaaagatttt tttgtaaaga agggttgtat ttagaggcca gtagctagag atccaaccag    60
tggacctctt gaagcactac caggccttaa ggccaccatc cgagggagac tgggaaaact   120
attattcacc caagcctccg gaaatgtaat gtaccagcag gcaaaaaaca gttcttcatg   180
tagtacaaaa tgaaacgaaa caaaaacaaa aacagaaagt aaaaatgaaa ccaaaacatt   240
tcttaaattc tagtgccata gcttttttgt ttgtttgttt tttgttgttg ttttgttttg   300
ttcataagaa agagagaaag atnctactta tccgtcagac acatgcatcc tcatgtggtc   360
gttgaactgc tcgatttggt caaactttgc tgggcagacg gagcagacgt aagtggtccc   420
ctccgtgcag gccaccacgc ctggggggcc agcgcgggca cctgggggtg tgcctgcagg   480
ggggtccca ttgctggcac tgtgcaaggc cacgtgtcgc tccaagaagg tcttgtgaga   540
aaacttnttt tttgcaatgt agcactcgta gggacttntc ttcccngngg aagcgcatgt   600
gcacgttgan gggacctntt ntgggggggaa ncacttgttg canaaactac actggnattg   660
ccctcactcc tgngngggggt cacccatgtg ctttgataaa ggnaatncct tttaagggg   719
```

<210> 432
<211> 789
<212> DNA
<213> Homo sapiens

<400> 432
```
caaagtggat ataggccttt tttgcatcat ctgcagccat ttacctggca tgagaagatt    60
aagaagaagg atccaaagtg tatatttgca tgtgaagaga tgtcaggaga agttcggttt   120
agtagccatt tacctcaacc aaatagcctt tgtagtttaa tagtagaacc catggaaaac   180
tggctacagt tgatgttgaa ttgggaccct cagcagagag gaggacctgt tgaccttact   240
ttgaagcagc caagatgttt tgtattaatg gatcacattt tgaatttgaa gatagtacac   300
atcctaaata tgacttctgc aaagataatt tcttttctgt taccacctga tgaaagtctt   360
cattcactac agtctcgtat tgagcgtgaa actggaataa atactggttc tcaagaactt   420
ctttcagaga caggaatttc tctggatcct cggaaaccag cctctcaatg tgttctagat   480
ggagttagag ctgtgatag ctatatggnt tatttgtttg ataaaaagta aaactgtata   540
tgaagggcat ttgcttccag aagttatctg attggtaaat tatattgtca ggacancaaa   600
tacagcttcc attatnaact gcgtaaaggt gggctgaaca ctgcactatg tgtctggact   660
aaaaaanant atacangctc tttnanggac aaagggacaa tggtaanctt tttaaattta   720
tgctacttac caaaatgaaa acatttgtct cacttccacc cctgaagctt aattgggttt   780
ttacaaaac                                                           789
```

<210> 433
<211> 734
<212> DNA

```
        <213> Homo sapiens

        <400> 433
        aatttaaaaa ccatttaata cacaaagtga aaaactatta gaatataaaa gcatttcaca      60
5       ttttttaaga caaataatat cttctaaatt acttagcaga tgatagaggt ccacagtcct     120
        ttctctgaaa cccttggggc aagttgtttc agaattatga aattttagat tttanaaaag     180
        tagtttgtg catataccat actacattaa ccagccctca ccacagtctg tggcagcagc       240
        cctccctctc atcatcaagc agcaaaataa aggaatattc acactaaatg ggataaaaag      300
        attcaaggtc agttcagatt agattgcaag caaatgaatt ttgtcaccaa gcttatggaa      360
10      accttgtttt cagagctttt tggattttgg aattacaatt acagataaag gagtgcagac      420
        ctttataaat ttgtatgaca agacatgaaa gattgtttaa acaaatgact cattttaca       480
        aatgaaaaaa catgtaattt tcaaatacat tataaattaa caggcatctt ctctttgata      540
        ttattaaatg tcatcttaaa tacatataca cacaacaaca tgattatga aagccaactt       600
        atattagaag cncagatncn caatnccttc gatgagaang gggatactgg taaattttca      660
15      gtgggatttn aaaatgatta ccccaactcc cttntgatgn cncggaagaa aaancctgtt      720
        cagtgcaacc ccaa                                                        734

        <210> 434
        <211> 665
20      <212> DNA
        <213> Homo sapiens

        <400> 434
        aagaaatagt ggagcctgag ctctcgatag aagtatgtga agaaaaagct tcagctgttc      60
25      ttcccccctac ctgtatacag cttcttgaca gcagtaactg gaaagaaagg ctggcttgta     120
        tggaagagtt ccagaaggct gttgagctaa tggaccgaac tgaaatgcca tgccaggcat      180
        tagtgaggat gctagccaag aaacctggat ggaaagaaac taattttcag gtgatgcaaa      240
        tgaagcttca tatagttgct ttgattgccc agaagggaaa ttttttccaaa acgtcagctc     300
        aggttgtatt agatggcctt gtggacaaga ttggagatgt gaaatgtggg aacaatgcaa      360
30      aagaagctat gacagcaata gccgaagcct gtatgttacc atggactgct gaacaggttg      420
        tgtcaatggc tttctcacaa aagaatccca aaaatcagtc agaaactctg aattggctat      480
        caaatgccat aaaagaattt ggttttctg ggttgaatgt caaagctttc attaacaatg        540
        tgaagacagc tcttgctgca acaaacccag ctgtgaggac tgctgccata accctgcttg      600
        gcgtgatgta tctgtatgtt ggnccctctt ttgccaaatg gtcttttgan ggatgaaaaa      660
35      ccctg                                                                 665

        <210> 435
        <211> 785
        <212> DNA
40      <213> Homo sapiens

        <400> 435
        acacttacct ggtacccccc cgggtggaaa atcgatgggc ccgcggccgc tctagaagta      60
        ctctcgagca tgctcatatc cttttcagaa agattccaa tcagtttgaa cacctgatcc        120
45      ccatgtacat tgtacaccgt tacaatggtg ttgagtgcag cattgcgtac agcattgtca      180
        cggtctccta tgtgaacagc tatttccttt aaggcttttc ctggggttgg ttggcaaaca      240
        ttcatgccat aggactcaac cagacatccc agctcttcca ggcactctgc tctctgctta      300
        gagtttttgg atttggttcc ttccatgata aagggaaaca tcttgctagc tgggtagaca      360
        aggcacatcc ggttcaggat ggcacgaaca tctttacgaa tgacatcctt tggttctcca      420
        accttgacga caagataggg gatgaaggaa gatgcttcat tctcagtaag atgatattct      480
50      tcttcactta gcaaggtgaa gagcaatttt aaatattcta gtgctttcat caggacgctt      540
        gtattggtgt caaaaaacct cagggtaagc cactttaaga taagatccag gcaaccaata      600
        actccttctt tttcactctc caagtgatca accataacag caagggcttt gttatgatgc      660
        tgaaagtctg agtgaaacat ctcatcttgt aaccatttag ccacacagct agacatttga      720
55      gtctttagtt gctcaatgga ttcatccccg tggggnagta aaattccctt tagcaccttc      780
        aatcc                                                                 785

        <210> 436
        <211> 717
60      <212> DNA
        <213> Homo sapiens

        <400> 436
```

146

```
atgttttatc atatttaggt tatttattaa tgaaaatata tgacatttc aggaatacaa      60
attttgcacc ctgatgacct caaatgcgtg caacaagatg tttaatacag aaaataacac     120
aaaaactgtt gttacagtgg ttagaatttt taactttaaa aaaccatgaa tttgtattgt     180
tttaattgca caataaaata atgttgatat atacttaagc ttaaattaat tccaacaggc     240
aaacattttc caacccanag tgtggctgat gctgggtcan ctgactctat tttggttcac     300
accaactttg atgtctaggc tattcagcat ctacctagaa aatctcaatc gttccaagca     360
taccgtgaat tttgtgattt ctcagaagat tttcggagtt aaaagaagtg tttatatcac     420
ttaatatcca acatttctaa aggggggaaa accccccatc tattatcaat gacatttccc     480
aagtccttgc accaggccct tagtcaccag gttcccacgt tttgttgctt tcctaccgtc     540
tcaaaccagg ttcatgaaag catttgaaca gagttcagtc ttcattttac aaaaaaaaaa     600
aattcctaat agtggctaaa atctgcaaat ttctccattc gattacaatc tacaaagata     660
aaccagcatt cccttctctt tctctctttt gggtactttt cccctatccc tactggg       717
```

```
        <210> 437
        <211> 709
        <212> DNA
        <213> Homo sapiens


        <400> 437
ctgaagagtg cagctgcctg aaccgagccc tgccgaacag ctgagaattg cactgcaacc      60
atgagtgaga acaataagaa ttccttggag agcagcctac ggcaactaaa atgccatttc     120
acctggaact tgatggaggg agaaaactcc ttggatgatt ttgaagacaa agtattttac     180
cggactgagt ttcagaatcg tgaattcaaa gccacaatgt gcaacctact ggcctatcta     240
aagcacctca aagggcaaaa cgaggcagcc ctggaatgct acgtaaagc tgaagagtta     300
atccagcaag agcatgctga ccaggcagaa atcagaagtc tggtcacctg gggaaactat     360
gcctgggtct actatcacat gggccgactc tcagacgttc agatttatgt agacaaggtg     420
aaacatgtct gtgagaagtt ttccagtccc tatagaattg agagtccaga gcttgactgt     480
gaggaagggt ggacacggtt aaagtgtgga ggaaaccaaa atgaaagagc gaaggtgtgc     540
ttttgagaan gctctggaaa agaagccaaa gaacccagaa ttcacctctt ggactggcaa     600
ttaccaagct cccgtctgga caactgggnc cccattctta agaacgccat ttgacccttn     660
tganggcaaa gcccattcgg ctggaattcc tgacaaccca gtaacccctt                 709
```

```
        <210> 438
        <211> 634
        <212> DNA
        <213> Homo sapiens


        <400> 438
gccgccgccg ctaccaccgc gttcgggtgt agaatttgga atccctgcgc cgcgttaaca      60
atgaagcaga gttcgaacgt gccggctttc ctcagcaagc tgtggacgct tgtggaggaa     120
acccacacta acgagttcat cacctggagc cagaatggcc aaagttttct ggtcttggat     180
gagcaacgat ttgcaaaaga aattcttccc aaatatttca agcacaataa tatggcaagc     240
tttgtgaggc aactgaatat gtatggtttc cgtaaagtag tacatatcga ctctggaatt     300
gtaaagcaag aaagagatgg tcctgtagaa tttcagcatc cttacttcaa acaaggacag     360
gatgacttgt tggagaacat taaaaggaag gtttcatctt caaaaccaga agaaaataaa     420
attcgtcagg aagatttaac aaaaattata agtagtgctc agaaggttca gataaaacag     480
gaaactattg agtccaggct ttctgaatta aaaagtgaga atgagtccct ttggaangag     540
gngtcagaat tccagcaaaa gcatgcncaa cagcaacaag ttattcnaaa gaatgtcagt     600
ttattggtac attggttcaa aataacccaa cttt                                 634
```

```
        <210> 439
        <211> 733
        <212> DNA
        <213> Homo sapiens


        <400> 439
actcaacatt cattgtattt attttactaa acagtatggt tcaaaaaaac acaaaccgga      60
aaacctttat ttaaaactag tccaactaac tggatggggc tcactccatc ccatcccacc     120
cccgatcttt ctatatatat ggagctggaa ccctatcaga cagcgagcat tcacgtacac     180
tttgtctttc ctgttgaaca tgaataaacg tctttgaaca taaatgaact tctctgaacc     240
aaaagaaaca aatgaagttt tacaagatac aggcacttta tgttcccagt tttaaaaata     300
agccaagtga aaaatattta ataaaaataa ctggagcaga gaaagcttta ggagttatac     360
cattagttca aatgacttac actcaatgca aatagacagc atcaaacagg aaaacaaaca     420
```
147

```
      aaaatttaac tgaggttaat ggtcgtattt gtaaaaaaaa gatatccaat ttaccaaaat    480
      tggagaaaaa tggccatttg aatccaactt aaagatacgc caataatgtg cattacatct    540
      gcgtaactat gcagctgagt aacacctgaa agctctgcaa gagtgtgtgg ttagtgagaa    600
      aagcaaaagg tgctttttatt ccacagtatc tgattaaaca aaacaaagca atttacaaaa    660
  5   aaagtaccaa atgatacttt aaaataaata gttcatcatt ttgatgaata tatacatgta    720
      aaggccactt tct                                                       733


          <210> 440
          <211> 695
 10       <212> DNA
          <213> Homo sapiens


          <400> 440
      ggcggcagga cctgtacagt gcccgggacc tgcagggcct caccgtggag catgccattg     60
 15   attccttccg agaaggggag acaatgattc ttaccctcaa ggacaaaggc gtgctgcagg    120
      aggaggagga cgtgctggtg aacgtgaacc tggtggataa ggagcgggca gagaaaaatg    180
      tggagctgcg gaagaagaag cctgactacc tgccctatgc cgaggacgag agcgtggacg    240
      acctggcgca gcaaaaacct cgctctatcc tgtccaagta tgacgaagag cttgaagggg    300
      agcggccaca ttccttccgc ttggagcagg gcggcacggc tgatggcctg cgggagcggg    360
 20   agctggagga gatccgggcc aagctgcggc tgcaggctca gtccctgagc acagtggggc    420
      cccggctggc ctccgaatac ctcacgcctg aggagatggt gacctttaaa aagaccaagc    480
      ggagggtgaa gaaaatccgc aagaaggaga aggaggtagt agtgcgggca gatgacttgc    540
      tgcctctcgg ggaccagact caggatgggg actttggttt caaactgcng ggaacggggt    600
      cgccgcccaa gtgtccgaaa ntggaagaag aagaaagaac ctttgcctta anccctgnc     660
 25   gtcggacgac accccgaagt ggaagaacat tggac                                695


          <210> 441
          <211> 623
          <212> DNA
 30       <213> Homo sapiens


          <400> 441
      gggggaggaa gaggagaaag gcncaggggt gggagctgtt gccgaagctg ccacagcaaa     60
      agttctcccc cctcccccct tccctcctc tcaaggcccc tanaaaggtt ggagctgccg    120
 35   ccgcctgcan tcggtgaccg cgcgactcgg cgcccgcccg cggatagagg gaggaatcan    180
      cagcttggaa attcaagcac gtnatctggc gggatgggcg tttgcctaac gtatttaatg    240
      gaggaatcgg atggcataag tgattaaggt ggtattgagg atttctgaag cctatgaaag    300
      gtagaaactc aaccatgatt tcttttttcaa ctctacagca ttcctttcct tgaagtcttc    360
      gtttttacct tagtctcggg cagttatact taagcatgaa cattgacgac aaactggaag    420
 40   gattgtttct taaatgtggc ggcatanacn aaatgcagtc ttccaggaca atggttntaa    480
      tgggtggagt gtctngcccn ctactgtgtc tnggaaagct accaggattc annactttna    540
      agatcgaang nntgcctcnc cangaagatc cttgctgcna atgaagtgtt tacaaagaaa    600
      ggtgaaatgg agacaacacg gat                                             623


 45       <210> 442
          <211> 742
          <212> DNA
          <213> Homo sapiens


 50       <400> 442
      aacttggtgt gggtggaata gcaagtttct gatctaaaac aagtaatgca ttgcttctat     60
      aaaggtgaca acatgtaagg cagttcaaag aatgctgact aaccaaacga aatgcagtta    120
      ttggattatc ttgctattca tatcagctta acttgttatt acgcattgct cttaaatctg    180
      tacagcactc catttacaca gagtaacccc actcttgatt aatctgttct aaagtgccag    240
 55   tattatttac acttttttttt ttttagccaa aagtctggcc agttgtggca tcaggtgaag    300
      atgtcatccc agctctatta tcatttacat tcaccaaggg aaattctgaa aattcagcac    360
      ttgtccctgg tccccgaagg ttcacctgtc cattggcagt gctaaattga gtagctattc    420
      cagctcttga tccatgatag ggagcacgga agggctgttc aaaggagctc atttggtaag    480
      cttggtggac aggctgggcc tcagctttct tctgagaagt cacttgatcc anaaagtcct    540
 60   gtgttgatgt ggcanaaaca tggtttgtct catcacctga aaagggaaat gagtgctgtg    600
      aatcaccaac tattagtcca aagtgggact tatctggagt tgttcttagn ggaaaattca    660
      ttcctggatc gaaagctatt gatgggcatg gnggcatana cctgcttgtc tatggaaaaa    720
      aaagcctggc tggatttggg ga                                             742
```

```
        <210> 443
        <211> 652
        <212> DNA
5       <213> Homo sapiens


        <400> 443
        gtcacttccg gcttccttca gtccgctggt cccgagcacg agctgtgagg ggattcactt    60
        gtgtgcggaa ctcctcggaa ccatggcgtc cctttccctt gcacctgtta acatctttaa    120
10      ggcaggagct gatgaagaga gagcagagac agctcgtctg acttctttta ttggtgccat    180
        cgccattgga gacttggtaa agagcacctt gggacccaaa ggcatggaca aaattcttct    240
        aagcagtgga cgagatgcct ctcttatggt aaccaatgat ggtgccacta ttctaaaaaa    300
        cattggtgtt gacaatccag cagctaaagt tttagttgat atgtcaaggg ttcaagatga    360
        tgaagttggt gatggcacta cctctgttac cgttttagca gcagaattat taagggaagc    420
15      agaatcttta attgcaaaaa agattcatcc acagaccatc atagcgggtt ggagagaagc    480
        cacgaaggct gcaaganagg cgctgttgag ttctgcagtt gatcatgggt cccatgaant    540
        tnaattccgg cnagaattaa tgaatattgn gggcccacat tatcctcaaa acttcttact    600
        catnacaaaa accactttac aaaagntagc tgtanaanca gttctcaaac tg    652


20      <210> 444
        <211> 740
        <212> DNA
        <213> Homo sapiens


25      <400> 444
        gaacagaatc atattcaata tttatttaaa aagaaaaaag agaagctaaa tgtgctggtt    60
        aatttttgt tggcttactt gttggtctgt gatcggtgtt gtcaggcagc tgcactccca    120
        tgctttgtaa aagattggaa gcaggtcctg ccagtccagc ttgggagcta taggattcca    180
        atatatttga aaccaggttc aggtctacat ctactggtgc cataacagat tctcccgtac    240
30      canaatcttc ctcatctgaa ttgttatcgg tagtctggga tacaggttcc acttggttcc    300
        tagtggtgaa acttttgctg atgcaggtgt gtgctagttc ctggtccatc tgggccatgt    360
        atgacttgag attatcaagt gttcctttca gggaagcctc ttcgccaggt tcgtgtgttt    420
        caaagtccaa gtcatcatca ctatctaaac attcaaagtc ttcatcatcc agatcatcag    480
        aatctgactc attaggcctt ggccctaaaa tcttatcaaa ataattaaga aaagaatctg    540
35      catcaaaagt gattggagcc tcaaaaggtt ctcgaggcag ctctgctccc ttgnggggttg    600
        agactttgga tatgaaagct ttcatgctct ntgaaacttc agttaaagtc ataagtctgc    660
        tccttctcct ccttgggaaa caactcggat tctttttttgn caacagcttt cttgcaacan    720
        ctgggtccaa ctgatctggg                                               740


40      <210> 445
        <211> 714
        <212> DNA
        <213> Homo sapiens


45      <400> 445
        cggaggtgac ccggagtctg ctgcagcgct ggggcgccag ttttaggaga ggcgccgact    60
        tcgactcttg gggccagctg gtggaggcga tagacgagta tcagatatta gcaagacatc    120
        tacaaaagga ggcccaagct caacacaata attctgaatt cacagaagaa caaaagaaaa    180
        ccataggcaa aattgcaaca tgcttggaat tgcgaagtgc agctttacag tccacacagt    240
50      ctcaagaaga atttaaactg gaggacctga agaagctaga accaatccta aagaatattc    300
        ttacatataa taaagaattc ccatttgatg ttcagcctgt cccattaaga agaattttgg    360
        cacctggtga agaagagaat ttggaatttg aagaagatga agaagagggt ggtgctggag    420
        cagggtctcc tgattctttt cctgctagag ttcccggtac tttattacca aggttgccat    480
        cggaaccagg aatgacatta ctcactatca gaattgagaa aattggtttg aaagatgctg    540
55      ggcagtgcat cgatccctat attacagtta gtgtaaagga tctgaatggc ataaacttaa    600
        ctcctgtgcc aaganactnc tgnggcttca agaaaaagaa aatacatatg ttcatttaa    660
        tggngggaca ttggagcttc caaaaacnat gttggnaaaa attaacccaa aagg    714


        <210> 446
60      <211> 700
        <212> DNA
        <213> Homo sapiens
```

<400> 446

```
cggttttgct acactttaat gggttttttt ttaagggatt tttttttcagg tcttgtcagc      60
aacatcaaac aaaaggtact gagtactcca cagggtacan agtgctgcca aacaccttaa     120
aaaaattaca tgacacggan aaaatgcncc tnttgctcct tgaanagctt acagtctagg     180
gatttgacaa ctcacagtct taggaactgg gcaaagtaag gcaaattctt catcccctan     240
agctattgtg gactgaatca ttttanaatt tggaattaat ccaatcaaga tgagagacaa     300
gactaaattt ggctganaat tcattcaggc tcgcatagtt tttattaaca tccgtctant     360
aaacagaatg gacctaacag acaactgaaa gtaaanacta natctcttga agngcaaggg     420
ctacaacaac ttaattgggg ttacttattt taaaaagcaa acatactgaa tggtatgact     480
agggtgatta cactagttta aaaataggcc aggtactgac actgcattcc cctcatgcat     540
tgctcattta aaatagtgaa tattaaaata tgtgggcttt acatntaacc cacagaaagc     600
ccaccgcaaa tgttctgngg tatcaaattc cccctctgtg tactatgaaa gttttattta     660
tgccccatta agtcaaaagt naattatagt aagctnatga                          700
```

        <210> 447
        <211> 641
        <212> DNA
        <213> Homo sapiens

<400> 447

```
gcggtagccg cttttcgtcg actcttaccg gttggctggg ccagctgcgc cgcggctcac      60
agctgacgat gggggacccc agcaagcagg acatcttgac catcttcaag cgcctccgct     120
cggtgcccac taacaaggtg tgttttgatt gtggtgccaa aaatcccagc tgggcaagca     180
taacctatgg agtgttcctt tgcattgatt gctcagggtc ccaccggtca cttggtgttc     240
acttgagttt tattcgatct acagagttgg attccaactg gtcatggttt cagttgcgat     300
gcatgcaagt cggaggaaac gctagtgcat cttccttttt tcatcaacat gggtgttcca     360
ccaatgacac caatgccaag tacaacagtc gtgctgctca gctctatagg gagaaaatca     420
aatcgctcgc tctcaagca acacggaagc atggcactga tctgtggctt gatagttgtg     480
tggttccacc tttgtcccct ccaccaaagg aggaagattt ttttgcctct cacgtttctt     540
ctgaggtgag tgacacaacn gtgggcattt aacaataacc agaaccatct tttttaacat     600
caangcctgt gggaaaccac tttttggaaa aaaaatgaaa g                        641
```

        <210> 448
        <211> 761
        <212> DNA
        <213> Homo sapiens

<400> 448

```
ctgctgcaag tgtttattct atttagaagt ctacaaattt gagcttttaa gaaagattca      60
caaaatattc attcaaaacc acattttggg cttatcaaat ttcaaatata ttttactgtg     120
ctgaacaata tattctaatg ctgtctaaaa cacagctaaa ttattttttct ttatttgttt    180
atacacattc ggtaatttct gaaaagcaag atttaaaaat atttattaac aaaactaccc     240
aattacaatg actgttctcc catacacgca actattttct gtagctgtat cttcttacct     300
cattccactt taactctgta taccgtattg atttgtgatg agatgattta ttatgagaac     360
tcttagggag ttctcatctt ccatttctca tcaattcaaa cagcaacacc tttcacaaga     420
taacattaat tcccttggca gggcagaagc ttaagtttgt taaaagcact cactgaaaaa     480
cattttaaa tttataggtc atataaaata atttacaaag agacagatga cttcaaatat      540
tatttggcag tcaccttact atgtagaaac ataaatgaag caatctgtca cacgagacac     600
cagtcacttt tggtcttttg aangaagtgt gtgtggtgag tgttgtttct gcaggcccat     660
ncagcatncc gctgattctg gcagccctga gccctgtggt cacatggggg accttttctt     720
ctccccaatg gaagcctctg gttcaggacc aggagggagcc g                       761
```

        <210> 449
        <211> 675
        <212> DNA
        <213> Homo sapiens

<400> 449

```
acggcgagga cgtgcgaggg gtgctgaaga ggcgcgtgga gacgaggcag cacactgngg      60
aggcgatccg ccagcaggag gtggagcagc tggacttccg agacctcctg gggaagaagg     120
tgagtacaaa gaccctatcg gaagacgacc tgaaggagat cccagccgag cagatggatt     180
tccgtgccaa cctgcagcgg caagtgaagc caaagactgt gtctgaggaa gagaggaagg     240
tgcacagccc ccagcaggtc gattttcgct ctgtcctggc caagaagggg acttccaaga     300
```

```
cccccgtgcc tgagaaggtg ccaccgccaa aacctgccac cccggatttt cgctcagtgc   360
tgggtggcaa gaagaaatta ccagcagaga atggcagcag cagtgccgag accctgaatg   420
ccaaggcagt ggagagttcc aagcccctga gcaatgcaca gccttcaggg cccttgaaac   480
ccgtgggcaa cgcccaagcc tgctgagacc ctgaagccaa tggggcaacg ccaagcctgn   540
cgagaccctg aaaccccatg gcaatgcca agccttgatg agaacctgaa atnccgcttn   600
gcaaaagaag aaactcaaag aaaagacgtt taagaaatga tgtggaaact tnaaagaana   660
aggncatgcc cgggg                                                    675
```

```
        <210> 450
        <211> 791
        <212> DNA
        <213> Homo sapiens
```

```
        <400> 450
gagttttaga gaaatagtcc ttttaatatg acttanaaac tgcttttctc tggctttgtt    60
tcactcttct tcctcttccc cttccccttc accttcctcc atcgtttcca caatgagctc   120
tgctgtgcag gtggcttctc caagactgtt gacagccttg caggtgtact tggcatcgtc   180
atccccgcaa acatcactaa taattaaaga gcagttcccg tcctcatcgt agtctatctg   240
gaagtggcgg gactccctga ttgactggtc atctttgaac canacaacct cggggtctgg   300
gtatccttca atcttgcagt caaatctagc agcacttccc tccacaactt ctaaatcgcg   360
aatggtctta gagaaatagg gttttacatg aggcttttcc tcagcaacag cctcaaggaa   420
agcttgggac acatcttcag attctagttt ttctgcattg agcgggctgg ttggtgaccc   480
tgttgaggat ttcctgccac tgagccctga gatcattgcc atagaggaca gtcttccaat   540
ggctctcaca gcattgcccg ttttctgcca tttncttctt gccatgtact tcttcatncg   600
gccttggaaa gtttcttggc ctccatgttc ttnggnatct ttcattancc atggatgctg   660
aangcactgc gtgcagtcca agcnggtttt catatctttc ttcagcaaaa tgctgatgaa   720
atccttggca tcgtcngaga atctcatcga atgccctcgn ccgtcgaaat cccaagtggg   780
ctggaggtaa c                                                        791
```

```
        <210> 451
        <211> 726
        <212> DNA
        <213> Homo sapiens
```

```
        <400> 451
tctgggaaga tggcgaaggt ctcagagctt tacgatgtca cttgggaaga aatgagagat    60
aaaatgagaa aatggagaga agaaaactca agaaatagtg agcaaattgt ggaagttgga   120
gaagaattaa ttaatgaata tgcttctaag ctgggagatg atatttggat catatatgaa   180
caggtgatga ttgcagcact agactatggt cgggatgact tggcattgtt ttgtcttcaa   240
gagctgagaa gacagttccc tggcagtcac agagtcaagc gattaacagg catgagattt   300
gaagccatgg aaagatatga tgatgctata cagctatatg ataggatttt acaagaagat   360
ccaactaaca ctgctgcaag aaagcgtaag attgccattc gaaaagccca ggggaaaaat   420
gtggaggcca ttcgggagct gaatgagtat ctggaacaat tgttggaga ccaagaagcc   480
tggcatgaac ttgcagaact ttacatcaat gaacatgact atgcaaaagc agcctttttgt   540
ttagaggaac taatgatgac taatccacac aaccacttat actgtcagca gtatgctgaa   600
gttaagtata cccaangngg acttgaaaac ctcgactttc aagaaagtat tttgcacagg   660
cattgaaact gacaacagaa atatgagagc tttggttgga ctttntatgt cggcaagtca   720
tattgc                                                             726
```

```
        <210> 452
        <211> 907
        <212> DNA
        <213> Homo sapiens
```

```
        <400> 452
gcaagtttaa taaatcatca tggtttattt aacaaggtta tactacatta gagttttata    60
tatatacatg tatatgtgat atgaagagac tgatgtacaa tcaataagtc ttaaatctct   120
cttccatgga tttcccccat ctccccactt agcagtaaaa ggcattttta ggtttatata   180
aacacattct ttacaactgc cttcttaaca gaaaattact gtagtatata aatagcactg   240
agcatttagt aaataagtta caggccaata agttcaattg tgcagttgtg aaatctaatg   300
tcaaagagtt tttgaaacct taagactggg tgatctgcaa tgtttccaac atgtcttcga   360
cagccttaag agaatatttg gtttccttct tacttcgacc tgcaaactga taagctctgt   420
ttatttgact agctgccaac tagcatattt catgttgcct ttttcgtttt tgcacttgct   480
```

```
          tttggattag aagcaatatg acttgccgca tataaagtcc aaacaaagct ctcatatttc    540
          tgntgntcan gtttcaatgc ctgtgcaaaa actttcntga aagttcgang ntttcaaanc    600
          cccttgggna tacttaactt cagcatactg ggtgnaagna taagngggtg ggnggattan    660
          tcatcattag gtccccttaa acnaaangng ggttttgna tagncatgnt cnattgaagg    720
5         gaaaggtcct gcaagtttna tggccangct tntttggnct tccacaaaat ggttccaaaa    780
          cctcattcaa ctcccgnaag gggcncaaat tttttccctg gggngttttg naaggggaan    840
          tttacccttt ttggaaaaaa ggnaantggg aactnttggg aaaaaccntt ttataagcgn    900
          ggtaagc                                                             907


10            <210> 453
              <211> 669
              <212> DNA
              <213> Homo sapiens


15            <400> 453
          accatgtgct gagtctctcc ttccccatcc ggcgcgacga cggctcctgg gaggtcatcg     60
          aaggctaccg ggcccagcac agccagcacc gcacgccctg caagggaggt atccgttaca    120
          gcactgatgt gagtgtagat gaagtaaaag ctttggcttc tctgatgaca tacaagtgtg    180
          cagtggttga tgtgccgttt gggggtgcta aagctggtgt taagatcaat cccaagaact    240
20        atactgataa tgaattggaa aagatcacaa ggaggttcac catggagcta gcaaaaaagg    300
          gctttattgg tcctggcatt gatgtgcctg ctccagacat gagcacaggt gagcgggaga    360
          tgtcctggat cgctgatacc tatgccagca ccatagggca ctatgatatt aatgcacacg    420
          cctgtgttac tggtaaaccc atcagccaag ggggaatcca tggacgcatc tctgctactg    480
          gcccgtggtg tcttccatgg gattgaaaat ttcatcaatg aagcttctta catgagcatt    540
25        ttangaatga caccaanggt ttggagataa aacatttgtt gntcaaggat tttggtaatg    600
          tgggcctgca ctctatgaaa anatttacat cgtttggngc taaatgtatt gcntgtggng    660
          aagtctgat                                                           669


              <210> 454
30            <211> 593
              <212> DNA
              <213> Homo sapiens


              <400> 454
35        ggaaaacgta gacttttaat aactgctttt atcaccaggt taagccatgc agttacaaag     60
          tagttagaaa tttctgaagg gtgttagagt taaaaaaaaa aaaagctga ctcttacaca     120
          tatattatct agcacttcat ggggacacta ctgttcaaaa ggccctggcc aaataactcc    180
          caaatgaaac actcaaccca aggatgtttt cagcccactg ttagtgaagc tgggtgcana    240
          atgcaaagcc tctaaaagga gaggatacaa agtcaggtga gtaggggcca ttggcaatgc    300
40        tcagagccag ccagactcca aacaggagc ccaagtggtt tttttctggg acactctact    360
          tgaattattg tttaattagt caaccataga tcttcaaaag anaacaatta gttaacatga    420
          taaaaagtga ctggattctt tggactgnat tataattatt gtaagccaat tctgacggtt    480
          taatgaaaat agcccnccca ttttgcangg ttgaanatac ttaattnttc ncanggcttt    540
          tnatggctgg tngccatcnt ggatggatag ctttaatggc cttggtttat gaa           593


45            <210> 455
              <211> 712
              <212> DNA
              <213> Homo sapiens


50            <400> 455
          ccttactcgc gcgcctgcag gtngacacta ntaggatccn ngaattnggc acgaccaggn     60
          attgatgcgc cagggatccc aaatttttgg gtaacaacat ttgcanccat ccacanactg    120
          tctgcnctgc ttggggagga agatgaatga ggcnctgttt atttnaccat gnnttgaanc    180
55        gacnnaattt gctgatatta natccagtta cctaatagat tttatttct gntnaannnc    240
          cttactttna aaataaagac ctctccnnnc aattntatnt nattgngagn ggtgatcnnt    300
          cttcgacctc cnncganctc nantggantt ctgcacanga tttgactnac cgtntcantc    360
          nccctgcaga atanagccat caaggangag gcattcatga ggaaccagag agcttcttta    420
          cctggtttac tgaccattct gatgcaggtg ctgatgantt angagaggtc ntcaaagatg    480
60        atatttggcc aaacccatta cagtnctact tggttcccga tatggatgat gaaaancgnn    540
          aaggagaaag aagatgatga tgatgatgaa gaggangann gattnaaaca tattgactan    600
          taatgggatg aggatgaagg tgangaanat gaantatgat gatgaaangg aagaangag    660
          agnaagattg ncgtaanatt tnctntatag nacactgttn gattcnaacc tt            712
```

```
        <210> 456
        <211> 760
        <212> DNA
 5      <213> Homo sapiens

        <400> 456
        aancaagana aagtanacag atccntgtng gtaaangcta actgnccata ttcacataaa      60
        nacncagngt cctntntgan cccantttcc ananaangga ggaaaaaanc tananttntn     120
10      tgcnctacta cncaggggcc tancnccctc cagnttccan caaagcgaag ggagcaggtt     180
        tttntttttt cccacanagc tcggggggggt tgattccntn cagttttgt tcaaacngga      240
        ngggataaaa atgaacttcn ancanaaagg ggtananact ntttttcccat tgtattctgc     300
        tcaaggtntt tccccccaaa taaattgana accatggagt aaaaaaaana nacctcaana     360
        acagggcgac tgncncaana gggaaaaaaa aaaaaaaaaa gacngcaact tgctcccagg     420
15      gactggaaaa aatttaaaaa aaggaaggtn ggaatccanc agggttctat ttaggnattt     480
        tctccttaat cctcctctcc ttnctcccnt taataataat attnatcttc ttcaccttna     540
        tcctnatncc cttnttngaa aatattttct aaccttcctc ctctnnataa atnanaatna     600
        acttnttnnc cttctncttc ttcatcatcc atatcgggga cccaaatann cttnaattgg     660
        gtttgggccc aaaattattt tttgtagacc ttttcntact tattaaaaac ctgntttana     720
20      aaggggcngt naaccagggt aaanaaacct tttnggttcc                           760

        <210> 457
        <211> 811
        <212> DNA
25      <213> Homo sapiens

        <400> 457
        tggcggcggg ctcctgcgag aagcaagcgg aacttcctga gcgtgcttag gtgtcacagc      60
        tgggtgaccc tccgaaggaa ggtttttgccg ctggcgcgtc tggtgtatcg cggccttggg     120
30      gccgcggatc cctggggctt gccgctgcct ctggggttcg cgcggccctg gcgtcggggc     180
        tgcctcagcg ctggctgaag gccggcccga agcacccta attgtggccg cgcgcttccc      240
        tgctgctcct gctgttctcc gcgtcgcggt ggtggactct ggaggtggag ccttgcccgg     300
        cgagacgttg aggaggaatc attatagatt ctaaaaatat attttccctt ctctgtggac     360
        ttggtataaa acgtagcttt ttttctgctt ggatttattt tctaaaaatc aacaccgtaa     420
35      acccatatca gatacaacaa aattgggggta gttaaaacca tgagttgtgg aaatgagttt     480
        gtggaaacat taaaaaaaat tggttatccc aaagctgata atcttaatgg agaagacttt     540
        gactggttgt ttgagggcgt tgaanatgaa tcgtttctga agtggttttg tgggaatgtg     600
        aatgaacaga acgtgttgtc ttgaaaanan aattggaagc ttttaanatt ctttanaaaa     660
        tcangcaagc ctatttctaa aaaaggggcc ggcatttgga ttgaaagctc tttaaaaacg     720
        tgtaaaaact ttcttgattt ggaaagaaca ccctaanact gggattgaat aaaanaacct     780
40      tggaagaaaa tttagangga ttgaagggtt c                                    811

        <210> 458
        <211> 801
        <212> DNA
45      <213> Homo sapiens

        <400> 458
        aaaaatttag tagtgtttat tatacacagt cttctaataa ataaagagg acacgtaata       60
50      aagattcagt tttcagtaat tttcaatctt caagactaac agccttaatc tttgattgag     120
        tttctaaatt ctccacaata tctttcagat aatcttcatc tttttaaaaa tatacataga     180
        attctctttc catttgatgt aatttattat ttgccaaagt ttttcttttt gtcttcacat     240
        cagcaagaat atcagtgagg agatgattta gcttattcag ttgagattca actttatgaa     300
        actgctctgt taactcctga tcactaagca aaagctgatt tcctccttga tacaaagtat     360
55      cacaaagcat gtccacatcc ttattccgtt tggacagaaa gaaagaatgt tcttgagcag     420
        atactgccaa ctgatcttgt actaaagaaa tattctgttt caatttctca gccacttcct     480
        caaggtttcc atgagttaga aacaattctt ttttcttatt ctctccctcc aaaacttggt     540
        aaagcctatg agtagaataa tccttagtat caatggtatt ccttggattt atctgttgag     600
        aaactgatgg atctgttaac atttctaatt gcttgnaaag catcatgtta ctttgactaa     660
60      gttcttgaac caaattttca aggttgacga tatatgtccc cgagcttct taattcaatt      720
        tctatggata accggggaag ttcaaatgat gnccttggt ttattaatgg atttaaaact     780
        aacccttggc ttgctggata a                                               801
```

```
        <210> 459
        <211> 695
        <212> DNA
        <213> Homo sapiens ·
5
        <400> 459
        ggcggctgta caactcggcc gttgtcacca tgccggtcgt ccggaagatt ttccgtcgcc        60
        gccggggcga ctcggagtca gaggaagatg agcaggactc agaggaggtt cgattaaaac       120
        tggaagagac cagagaagta cagaacttga ggaagaggcc aacgggggtg agtgctgtgg       180
10      ccttgctggt gggagagaag gtacaagagg agaccactct agtggatgat ccctttcaga       240
        tgaagacagg tggtatggtg gatatgaaga aactgaagga aaggggcaaa gataagatca       300
        gtgaggagga ggacctgcac ctggggacat cgttttctgc agaaaccaac cgaagggatg       360
        aggatgcaga catgatgaag tacattgaga cagagctaaa gaagaggaaa gggatcgtgg       420
        aacatgagga acagaaagtt aagccaaaga atgcagagga ctgtctttat gaacttccag       480
15      aaaacatccg tgtttcctca gcaaagaaga ccgaggagat gctttccaac cagatgctga       540
        gtggcattcc tgaggtggac ctgggcatcg atgctaaaat aaaaaatatc atttncacgg       600
        aggatgccaa ggcccgtctg ctggcagagc nccgaaccag gaagaaagac cgcgagacct       660
        ctttgtgcct accaacatgg ctgtgaatta ttgtc                                 695


20      <210> 460
        <211> 780
        <212> DNA
        <213> Homo sapiens

25      <400> 460
        aaaaatttag tagtgtttat tatacacagt cttctaataa ataaaagagg acacgtaata        60
        aagattcagt tttcagtaat tttcaatctt caagactaac agccttaatc tttgattgag       120
        tttctaaatt ctccacaata tctttcagat aatcttcatc ttttaaaaaa tatacataga       180
        attctctttc catttgatgt aatttattat ttgccaaagt ttttcttttt gtcttcacat       240
30      cagcaagaat atcagtgagg agatgattta gcttattcag ttgagattca actttatgaa       300
        actgctctgt taactcctga tcactaagca aaagctgatt cctccttga tacaaagtat        360
        cacaaagcat gtccacatcc ttattccgtt tggacagaaa gaaagaatgt tcttgagcag       420
        atactgccaa ctgatcttgt actaaagaaa tattctgttt caatttctca gccacttcct       480
        caaggtttcc atgagttaga aacaattctt ttttcttatt ctctccctcc aaaacttggt       540
35      aaagcctatg agtagaataa tccttagtat caatggtatt ccttggattt atctgntgag       600
        aaactgatgg atctgttaac atttctaatt gcttgnagag catcatgtta ctttgactaa       660
        ggttcttgga accaaatttt cnaggtggcc gatatatgtc ccgaagcctt tcttaaattc       720
        aattttcatt atggaataac ctgggagaaa gtccaaatgg atgccccttt ggggtttatt       780


40      <210> 461
        <211> 753
        <212> DNA
        <213> Homo sapiens

45      <400> 461
        gtatcgtgga aagggagagt ggccactatg tggagatgca cgcccgctat atagggacca        60
        cagtgtttgt gcggcaggtg ggtcgctacc tgacccttgc catccgtatg cctgaagacc       120
        tggccatgtc ctacgaggag agccaggacc tgcagctgtg cgtgaacggc tgccccctga       180
        gtgaacgcat cgatgacggg cagggccagg tgtctgccat cctgggacac agcctgcctc       240
50      gcacctcctt ggtgcaggcc tggcctggct acacactgga gactgccaac actcaatgcc       300
        atgagaagat gccagtgaag gacatctatt ccagtcctg tgtcttcgac ctgctcacca       360
        ctggtgatgc caactttact gccgcagccc acagtgcctt ggaggatgtg gaggccctgc       420
        acccaaggaa ggaacgctgg cacatttccc cagcagtgg caatgggact ccccgtggag       480
        gcagtgattt gtctgtcagt ctaggactca cctgcttgat ccttatcgtg tttttgtagg       540
55      ggttgncttt tgttttggnt ttttattttt tgctataaca aaattttaaa atatatattg       600
        ncataatata ttgagtaaaa gagtatatat gtatataacca tgtatatgac aagatgtttg       660
        tcctgggaca cccaccaaga ttgncatact gggtttggtt ggtttcacat atgttggatg       720
        tagggtcttt gaatggatca attttggttg gag                                   753


60      <210> 462
        <211> 766
        <212> DNA
        <213> Homo sapiens
```

154

<400> 462

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gcaaggnatg taactttatt tttctagcat aataatttaa agtatttaca cactgcacac        60
tcactgtttt acacanatac gtattcatat atctatgaac cacatctaaa ggtttctttg       120
caaanactcg acacactgng ggggggggag cttccaagcn taacaaagag gacaaaaaaa       180
agttttgagt cttttaaana cagccatgtg gagcatntgt gaaaaccagn gtttcccccg       240
ttttaagctc ccccaggana cctctgaaca gctntagcct atccacatgt tggtatgacc       300
tgaaattctt ctagctaagg tttcaanaac caacatgtgc aagcagcatt ttttctagaa       360
atntcaaaaa aggagaaaat aaacctggcc cttacgtana gaaatacatc tatttctgaa       420
agtaatctgt ggggattgtt ttacagggac accgattaca agggcagaat agcaaaatac       480
actnttacta gtgatgcagg gngcttttaa atgtccttcc actaaatgat atggcaaaat       540
aacccaatct tnttttccca actatcagta anggnggntg gtattttccc tgaaaaagag       600
caaanggttt tttattaatg atacacactc taaacccaaa cctatanaaa ttcttctatt       660
gnttttactt cactttcatc tatttgccaa aaanaggggg tatcccccga ttttttccnc       720
cttggccccc ccantnttaa acaaattttt accatgcttt tgaatt                     766
```

<210> 463
<211> 827
<212> DNA
<213> Homo sapiens

<400> 463

```
gctgtcagaa aaatttttta aagcagcctc taattgtggc attgtagaaa gtatcctgaa        60
ctgggtgaaa tttaaggctc agactcagct gaataagaag tgttcatcag taaaatacag       120
taaaatcaaa ggtattccca aactggatga tgctaatgat gctggtggta aacattccct       180
ggagtgtaca ctgatattaa cagagggaga ctctgccaaa tcactggctg tgtctggatt       240
aggtgtgatt ggacgagaca gatacggagt ttttccactc aggggcaaaa ttcttaatgt       300
acgggaagct tctcataaac agatcatgga aaatgctgaa ataaataata ttattaaaat       360
agttggtcta caatataaga aaagttacga tgatgcagaa tctctgaaaa ccttacgcta       420
tggaaagatt atgattatga ccgatcagga tcaagatggt tctcacataa aaggcctgct       480
tattaatttc atccatcaca attggccatc acttttgaag catggttttc ttgaagagtt       540
cattactcct attgnaaagg caagcaaaaa taagcaggaa ctttccttct acagtattcc       600
tgaatttgcg aatggaaaaa acatatngaa aaccagaaag cctggaaaat aaagtactat       660
taangattgg gtctagtnca gcttaaagaa gcaaggata ttttggtgaa ttggaaaagn       720
gtcgcatttg gttanatatc tggncctgaa aangaagctg cnttaacctt ggcttttagt       780
aananaaaat gntgaccgaa aaaaaatggt taacaaattt tntggaa                     827
```

<210> 464
<211> 708
<212> DNA
<213> Homo sapiens

<400> 464

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cccattttta angtttaaat ttcatttcaa aaagcaggtc tgtagttngt anccntgaca        60
attaaaatnt gngctaatgc ncggcagtnt ntaacaattn tncaanccaa tcaaacagtn       120
cgngacnttt cantgagtaa aaaanancnt aaaactgttt gngtaaaaac aaaatgttaa       180
anggcctccc ncaatantaa aaaaccgnca nttncntcnt cncnttaaaa taanccanat       240
gtccaaaagt ntgagncaga naanacaaan ggcnccccaa gatttttgtt gaaaaatgtt       300
tgngctnttt gggcccttaa ttaaacattg caaaatcaac atcntttttt ttttcntnaa       360
actntgcaaa atnttttact tntttcntac ccnaccggtt cgtggcaaaa aaggnggctc       420
attagggaag tntgagggga aaatgtccac atctgaatcc tgatcaaaan atgtcttctt       480
cggtttcttg cttgnggntt tggangtttn cctgccaggg ttataatcgc cttcattttc       540
aaagccanat gctttccttt tntttgcccc tcngccttta ccttttgggg gnggaggctt       600
nttttggaat gccaaattct gaatcccgag canaagntta cagccctttn ttctttnttt       660
tgtttttnggg gttntnttgg cttaaggac tggntttgaa aacggttt                    708
```

<210> 465
<211> 774
<212> DNA
<213> Homo sapiens

<400> 465

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aggtgggtcg ctacctgacc cttgccatcc gtatgcctga agacctggcc atgtcctacg        60
```

```
        aggagagcca ggacctgcag ctgtgcgtga acggctgccc cctgagtgaa cgcatcgatg    120
        acgggcaggg ccaggtgtct gccatcctgg gacacagcct gcctcgcacc tccttggtgc    180
        aggcctggcc tggctacaca ctggagactg ccaacactca atgccatgag aagatgccag    240
        tgaaggacat ctatttccag tcctgtgtct tcgacctgct caccactggt gatgccaact    300
 5      ttactgccgc agcccacagt gccttggagg atgtggaggc cctgcaccca aggaaggaac    360
        gctggcacat tttccccagc agtggcaatg ggactccccg tggaggcagt gatttgtctg    420
        tcaagtctag gactcacctg cttgatcctt atcgtgtttt tgtaggggtt gncttttgnt    480
        ttggttttt atttttgnc tataacaaaa ttttaaaata tatattgnca taatatattg    540
        agtaaaaaga gtatatatgt atataccatg tatatgacaa ggatgtttgt cctgggacac    600
 10     ccaccagatt gnacatactg ngtttggctg gtttcacata ttgttggatg naaagntctt    660
        tgattggatc aattttggtt tgcagttctg ngaaangttt ataatgtcct tgccaaggac    720
        ctggtanaaa cactttattt tttatatatt aaanatttat ggggggcctg ggtg          774


            <210> 466
 15         <211> 778
            <212> DNA
            <213> Homo sapiens


            <400> 466
 20     ccacagcaag gtatgtaact ttattttct agcataataa tttaaagtat ttacacactg     60
        cacactcact gttttacaca gatacgtatt catatatcta tgaaccacat ctaaaggttt    120
        ctttgcaaag actcgacaca ctgtggggg gggggagctt ccaagcntaa caaagaggac    180
        aaaaaaaagt tttgagtctt ttaaanacag ccatgtggag catctgtgaa aaccagtgtt    240
        tccccgttt taagctcccc cagganacct ctgaacagct atagcctatc cacatgttgg    300
 25     tatgacctga aattcttcta gctaaggttt caanaaccaa catgtgcaag cagcatttt     360
        tctanaaatc tcaaaaaagg agaaaataaa cctggcctt acgtagagaa atacatctat     420
        ttctgaaagt aatctgtggg gattgtttta cagggacacc gattacaagg gcagaatagc     480
        aaaatacact attactagtg atgcagggng cttttaaatg tcacttccag ctaaatgata     540
        tggcaaaata acccaatctt cttttcccac tatcaagtaa nggngggtgg tattttncct     600
 30     gaaaagagca aaggttnttt attaatgata cacactctna acccagatcc tttanaaatt     660
        cttctattgn ttttacttca ctttcatact tttgcacaaa aaaagggggg tatncccccg     720
        attttttcct cncttgggcn tcccaaattn taaaacaaat ttttacnatg cttctgaa      778


            <210> 467
 35         <211> 726
            <212> DNA
            <213> Homo sapiens


            <400> 467
 40     gagaaatcac tgaattaaaa gtaaaagaat ttgaaaatat caaattacag cttcaagaaa     60
        accatgaaga tgaagtgaaa aaagtaaaag cggaagtaga ggatttaaag tatnttctgg    120
        accagtcaca aaaggagtca cagtgtttaa aatctgaact tcaggctcaa aaagaagcaa    180
        attcaagagc tccaacaact acaatgagaa atctagtaga acggctaaag agccaattag    240
        ccttgaagga gaaacaacag aaagcactta gtcgggcact tttagaactc cgggcagaaa    300
 45     tgacagcagc tgctgaagaa cgtattattt ctgcaacttc tcaaaaagag gcccatctca    360
        atgttcaaca aatcgttgat cgacatacta gagagctaaa gacacaagtt gaagatttaa    420
        atgaaaatct tttaaaattg aaagaagcac ttaaaacaag taaaaacaga gaaaactcac    480
        taactgataa tttgaatgac ttaaataatg aactgcaaaa gaaacaaaaa gcctataata    540
        aaatacttag agagaaagag gaaattgatc aagagaatga tgaactgaaa aggcaaatta    600
 50     aaagactaac cngtggatta cagggcaaac ccctgacaga taataaacca aggtctaatt    660
        ggagaaactc caanggaagg ttaaaaactt gagaacccat ttttangga aggngggagg    720
        aagtaa                                                                726


            <210> 468
 55         <211> 704
            <212> DNA
            <213> Homo sapiens


            <400> 468
 60     catataattt tatttattaa gaattccaat ctaagtataa aggtncaagg tagtgagaag     60
        gaaatactac agttcggaga actgcttatt tccaagtata tttaacttat aaagttaata    120
        aatagttaaa tgaaacaaag tttataggtg acctttagta aatggggaaa ttaacaggac    180
        tttcttcttc atcttcaaac tcttcanaag cagcaacagg gctagttaat tcaactccca    240
```

/154/

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       attgttctga aagttttttt accttctctt ctaanagaat attcttcttc acttcttcct      300
       tgtaattata cttaanatct tcaatttctt caaaaaatga aggatcaaaa ttttccagtt      360
       cttttttcag cttctttatt tcctccttca aatgctgctt ttctanatct gacattttga      420
       gctgngtctc tagatctttt attttttcct ttagttgatc agcatcaggt atgghgcttt      480
 5     cagctccact ttggtccttg gtagcttcta tctgatggat taattctgct ttctctttat      540
       cagctggatg attagctnat ctaaaaacct ggaagctccc tttaaaggcc tgctctgtct      600
       caaccccntc angaacatgg tttaanaatc ttaatctggt gntcaagggc ttcattggat      660
       ttgggaaacc tttttgggnc ccnctctggg ggcctcnttt acaa                       704
```

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10         <210> 469
           <211> 763
           <212> DNA
           <213> Homo sapiens


15         <400> 469
       gccgggagtt ggagcctgcg gagttcgaga ccatgctgct gttctgcccc ggctgcggga       60
       acgggctgat cgtggaggag ggacaacgct gccaccgctt cgcctgcaac acgtgccct      120
       acgtgcacaa catcacccgc aaggtaacaa atcggaagta cccaaaactg aaagaagtgg      180
       atgatgtgct tggtggagca gctgcctggg agaatgttga ctctactgca gagtcgtgtc      240
20     ccaaatgcga acatcctcgt gcttacttca tgcagcttca gacccgctct gcagatgagc      300
       cgatgaccac cttctacaag tgctgcaatg ctcagtgtgg acaccgctgg agggattagg      360
       gccaggatgg cccagctgcc ctagtgtgtg cttgccttgt ccctcggggt agatgcttan      420
       ctggcagtat gagttgtgtg tcctgagggt ctttgctagt gtggtggaaa gataaacctt      480
       ttgaggtgaa gagccagggg gtcaggaaat atggcctatc tgccaggcag ggtggatgaa      540
25     gtcatgaatg tctgggagtt tttctgtgtg gggaggagac agagacccat aactaaatat      600
       gctcttgtgt aaaagtccta ttctttcatc ttccaattta ttggcaattg acattccctt      660
       taactnccaa tcaaacactc ttaaaatatt ttgtacctgt ttgtaaaact taantacatg      720
       gtnccctaaa atattttaac ctgttacttt ggaaaacttg ggg                        763
```

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30         <210> 470
           <211> 706
           <212> DNA
           <213> Homo sapiens


35         <400> 470
       gcaatattcc aactttcatt taaatgaaat attcagaatt ttgattaaaa taaataataa       60
       attacacaag tttacaagta acagttaaat atttagggac atgtactaag ttttacaaac      120
       agtacaaata tttaanagtg ttgattggga gtaagggaat gtcaactgcc aataaagtgg      180
       aagatgaaag aataggactt tacacagagc atatttagtt atgggtctct gtctcctccc      240
40     cacacagaaa aactcccaga cattcatgac ttcatccacc ctgcctggca gataggccat      300
       atttcctgac cccctggctc ttcacctcaa aaggtttatc tttccaccac actagcaaag      360
       accctcagga cacacaactc atactgccag ctaagcatct accccgaggg acaaggcaag      420
       cacacactag ggcagctggg ccatcctggc cctaatccct ccagcggtgt ccacactgag      480
       cattgcagca cttgtagaag gnggtcatcg gctcatctgc agagcgggtc tgaagctgca      540
45     tgaagtaagc acgaggatgt tcgcatttgg gacacgactc tgcagtagag tcaacattct      600
       cccaagcagc tgctccacca agcacatnat ccacttcttt cagttttggg tcttncgatt      660
       tgttaccttg cnggtgatgt tgtgcacgta ggggcacgt gttgca                      706
```

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           <210> 471
50         <211> 715
           <212> DNA
           <213> Homo sapiens


           <400> 471
55     gctgcaagat ataaaagaaa aaatcagtaa gggagaatat ggaaacgctg gtatcatggc       60
       tgaagtggaa gagctcagga aacgtgtgct agatatggaa gggaaagatg aagagctcat      120
       aaaaatggag gagcagtgca gagatctcaa taagaggctt gaaagggaga cgttacagag      180
       taaagacttt aaactagagg ttgaaaaact cagtaaaaga attatggctc tggaaaagtt      240
       agaagacgct ttcaacaaaa gcaaacaaga atgctactct ctgaaatgca atttagaaaa      300
60     agaaaggatg accacaaagc agttgtctca agaactggag agtttaaaag taaggatcaa      360
       agagctagaa gccattgaaa gtcggctaga aaagacagaa ttcactctaa aagaggattt      420
       aactaaactg aaaacattaa ctgtgatgtt tgtagatgaa cggaaaacaa tgagtgaaaa      480
       attaaagaaa actgaagata aattacaagc tgcttcttct cagcttcaag tggagcaaaa      540
```

```
taaagtaaca acagttactg agaaagttaa ttgaggaaac taaaanggcg ctcaagtncc    600
aaacccgtgt tgaagaaaag atgttcgccg ttacccangn gagagatgat tttaaaaaca    660
aaattgaagc cggagaaaag aaanggaatg tctcctgtca agagttatat gttgg         715
```

5   <210> 472
           <211> 716
           <212> DNA
           <213> Homo sapiens

10   <400> 472
```
aaaaataaca aattatttac tgttttataa tgttaaagta tttcaccaag acaagttgca     60
gtcaaattaa agtgagttat ggaaatgaa atacataaag atgtatttat acaagtgcag    120
actaaatatt ttccatacaa gtatgtaaat gaaaagatat acagtaagtg cacactcgat    180
atgactatgc aggcaacagt tagtttcaga tactcttgta tagttcatgc acaaaccttc    240
ccaaagtacg agttcagtca gtcttggggg atatggaggg atgattaaaa aaggattgag    300
ttccttgcaa aaatatcagt atggactgga tgagggtgag cgtggtcagt tatatatatt    360
acttactgta atttgtgatt gtcgaggaag aggtgtggct gttggtgtga tagtaatact    420
gctggtgact ttattggttg ttttgtttag tgccccgtta attaagcctt gagttcggtt    480
atcctgcagt ggtgctgaag ggctggcagg tctcacaggg ctggctacag cttgcatgta    540
angacttnct aagtgaatgt ggatttatta tcctcagagt tatcccactt gagctattgn    600
tggtttgaac nctgaaactg ccatgatgac ttgccggtct ngggggagact cttgaanttc    660
gcatgcctgg cncctggatt tctggtgggt ctngggggagc ggtccctgct caagga        716
```

           <210> 473
25   <211> 671
           <212> DNA
           <213> Homo sapiens

           <400> 473
30
```
gtaagagttg actctacagc aaaggttgca gaaatagaac atgcggaaaa ggaaaaaatg     60
aaggagaaag ttgaacgtat tcttaagcat ggaataaatt gctttattaa caggcaatta    120
atttataatt atcctgaaca gctctttggt gctgctggtg tcatggctat tgagcatgca    180
gattttgcag gtgtggaacg cctagctctt gtcacaggtg gtgaaattgc ctctaccttt    240
gatcacccag aactggtgaa gcttggaagt tgcaaactta tcgaggaagt catgattgga    300
35  gaagacaaac tcattcactt ttctgggggtt gcccttggtg aggcttgtac cattgttttg    360
cgtggtgcca ctcaacaaat tttagatgaa gcagaaagat cattgcatga tgctctttgt    420
gttcttgcgc aaactgtaaa ggactctaga acagtttatg gaggaggctg ttctgagatg    480
ttgatggctc atgctgtgac acagcttgcc aatagaacac caggcaaaga agctgttgca    540
atggagtctt atgctaaagc actgagaatg ttgccaacca tcatagctga caatgcagct    600
40  atgacagtgc aaacctggtg gcacagctca aggctgctcc agtgaaggca tcccctgctg    660
gattggattg a                                                          671
```

           <210> 474
           <211> 737
45   <212> DNA
           <213> Homo sapiens

           <400> 474
```
ctcacggaca agaacctcag ataggttaaa taggattgcg aatcaggtgg ccattcagcg     60
50  gaagaagcag tttgtggagc gagcccacag ctactggctg ctcaagcggc tgtccaggaa    120
cggggccccc ctgctgcggc ggctgcagtc cagcctgcag tctcagcgaa gctcacagca    180
gagagaaaat gatgaggaga tgaaggctgc caaagagaag ctgaagtact ggcagcggct    240
gcggcacgac ctggagcgcg ctcgcctgct gatcgagctg ctgcgcaagc gggagaagct    300
caagcgtgag caggtgaagg tggagcaggt cgccatggag ctgcggctga ccccgctgac    360
55  ggtgctgctg cgctcagtgc tggaccagct gcaagacaag gaccccgcca ggatatttgc    420
gcagcccgtg agtctgaagg aggtaccaga ttatttggat cacattaaac atcccatgga    480
ctttgccaca atgaggaaac ggttagaagc tcaagggtat aaaaacctcc atgagtttga    540
ggaggatttt gatctcatta tagataactg catgaagtac aatgccaggg acaccgtgtt    600
ctataaancc cgcggtgaag cttgcgccat caaggaggtg ttgtttctga ngcaagcccc    660
60  gccncgangt gggacaagca tccgcttggg aaaaaggnct tcggggattg ccccttgcct    720
gaagccgggc ttgcttg                                                    737
```

           <210> 475
```

```
        <211> 780
        <212> DNA
        <213> Homo sapiens


            <400> 475
    ccaaatcttg actttatttt taatataaaa aatgcaaatt tggaaaccca ccctactttc    60
    cccaacataa tgctttacct cttaaaaata aaaataaagt actaattcta tatacatcac    120
    aggtaccata caaaaatgta tccaaagttt ctattgctac caaagtgttc taaattaaaa    180
    caagttacag aaagcccctc attgtaaaca aaagattaca agttataaaa tcaaagtaca    240
    cacaggccan agtcatttat acaatgcaat gcattctgct cccaagccaa gttgaatttt    300
    tatgtgcctg tataaaaatg catatcaata tacctttgca aatgtatttt tcattataaa    360
    gcaaatgaat acactttcta caataaataa tccgntggga ggcacacctg cggggtttga    420
    ggtgggcggg acgacgggag cggggacaca cccaccggcg gtcacgggca gcggagngtt    480
    tttggtgatc tgcaagtgat gtacacagca taactttatt ctcccctctt tccacaaagt    540
    accattcaaa ataatgncat tttctttctt aaaatacaca tttgtcattg taaatttaca    600
    tcccgtctta ttaaataagt ggtctctgtg taaagagcat gatttacaaa attattaaac    660
    attcaaaagt ctttaanaaa aagctacatn tcaaanaaag ggnaccccag caacaccggn    720
    ctgggggacg tgcganaaaa cncactgggc ttggcccgga cgtgcccccc cccatttaca    780


        <210> 476
        <211> 738
        <212> DNA
        <213> Homo sapiens


            <400> 476
    agaagccaga gctccagcgg cgccgcgggg cggcagtcaa gaccagagcc ggagccgtca    60
    ctcacctctg gattagcctg aagcggagac taccggctgc ggagcggcgg ggcgagacac    120
    ttgctcgcct tttgacccca tcatgtcgcg gggctccatc gagattcccc tccgggacac    180
    tgacgaggtc attgaacttg acttcgatca gttaccggag ggagatgaag ttatcagtat    240
    tctgaaacag gaacacacac aactgcacat atggattgct ttggcgctgg aatactacaa    300
    gcaaggaaaa acagaagagt ttgtaaaatt gttggaagca gcacgtatag atggcaattt    360
    ggactataga gaccatgaaa aagaccagat gacttgcttg gatacattgg cagcgtatta    420
    tgtacaacag gctcggaaag aaaagaataa ggacaataaa aaggatctta ttacacaggc    480
    caccttgttg tatacaatgg ccgataaaat tattatgtat gatcagaacc atttgttggg    540
    aagagcctgc ttctgcctac ttgagggtga caaaatggat caagctgatg cacagtttca    600
    ttttgtactc aatcagtctn caaataatat ttncagccct tcttggtaaa acttgcattt    660
    ncttcaacaa gaaaggattt cagganggag ctcttggctt actattaana aagcattgcg    720
    tactaacccc aggattgt                                                    738


        <210> 477
        <211> 766
        <212> DNA
        <213> Homo sapiens


            <400> 477
    aaaagntggt anaagaatnc tattattnang tggcttaagt cggtttttagc tgtctactan    60
    cngaaaagca ttttccncac cntattnanc ctaacacatn ntncatttgg gancntatnt    120
    acnncgatgn ccnnntncac tnttgaaaac cttnctttca aatgnncttt ggngcaagga    180
    tacagnntat atcnntgcct tcnaaaaata aaaatnttct naatctaacc tcaaaatgga    240
    ntaaagacat cnatccctag nttgcgcncc acttggtnaa agaccgcnnt naaaancaaa    300
    agagtatgct gnttnccata tacngangat gagacgtctg ccacagtggc anncaaacct    360
    tngtaggaan gatttaccat cngggttnat tgntactgnn gntnncacat atgatagggc    420
    ggaattgctc cacaaagaat agtctcattt gcacgagaga ctcaaatatt ggactctanc    480
    acaggaaatg tcnattgggg ctcacaaata tacnanctga tagaanagaa aattgcctta    540
    agaaaaattt nacaattgnc taaacatctg aaacattttt atcacagctt tcatatatta    600
    aaaaagtttc ctccanaaat gaagcttatt gangaaataa aacctagtca ctatcatctg    660
    acccatgttc tgagcctttta tctgangcct tgggtggtgg atccctttgg ttncgattca    720
    tttccaaanc ctttgnaccg gaaccctcat ttgttaggaa cctctt                    766


        <210> 478
        <211> 591
        <212> DNA
        <213> Homo sapiens
```

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        <400> 478
        agaacggnaa ctagaaagag cgagagaaag ggataaagaa cgagaacgcc aaagggattg    60
        ggaagacaaa gacaaaggac gagatgaccg cagagaaaag cgagaagaga tccgagaaga   120
   5    taggaatcca agagatggac atgatgaaag aaaatcaaag aagcgctata gaaatgaagg   180
        gagtcccagc cctagacagt ccccgaagcg ccggcgtgaa cattctccgg acagtgatgc   240
        ctacaacagt ggagatgata aaaatgaaaa acacagactc ttgagccaag ttgtacgacc   300
        tcaagaatct cgttctctta gtccctcgca cctcacagaa gacagacagg gtagatggaa   360
        agaggaggat cgtaaaccag aaaggaaaga gagttcaagg cgctacgaag aacaggaact   420
   10   caaggagaaa gtttcttctg tcgataaaca gagagaacag acagaaatcc tggaaagctc   480
        aagaatgcgt gcacaggaca ttataggaca ccaccagtct gaagatcgag agacatctga   540
        tcgagctctg atgaaaacaa gaagaaagcc aaaattcaaa gaaccnattt t             591

        <210> 479
   15   <211> 583
        <212> DNA
        <213> Homo sapiens


        <400> 479
   20   aannggnttc ttttgaattt ttgctttctt cttgttttca tcatgagcnc gatcanatgt    60
        ctntcgatct tcaaactggg ggggncctat aatgncctgn gcncccattc ttgagctttc   120
        caggatttct gtctgttctc tctgtttatc tacaaaaaaa actttntcct tgagttcctg   180
        ttcttcgtag cnccttgaac tctntttcct ttctggntta caancctcct ntttccatct   240
        accctgtctg tcttntgnga ggggcgaggg actaaaaaaa cnaaattntt gnggncgtac   300
   25   aacttggctc aanantctgg gttttcatt tttatcatct ccnctgntgn aggcatcact   360
        gtccgganaa tgttcacccc ggcgcttcgg ggactgtcta gggctgggac ncccttcatt   420
        tctatagccg cttctttgat tttctttcat catgnccatc tcttggattc ctatcttctc   480
        ggatctttn tcgctttnt ttgnggncat ctcggccttt nnntttgnnn tccccaaccc   540
        tttgggggntc tcgntctta tnccctttt ctcgctttt tcg                        583

   30
        <210> 480
        <211> 720
        <212> DNA
        <213> Homo sapiens

   35
        <400> 480
        ggcaggacct gtacagtgcc cgggacctgc agggcctcac cgtggagcat gccattgatt    60
        ccttccgaga aggggagaca atgattctta ccctcaagga caaaggcgtg ctgcaggagg   120
        aggaggacgt gctggtgaac gtgaacctgg tggataagga gcgggcagag aaaaatgtgg   180
   40   agctgcggaa gaagaagcct gactacctgc cctatgccga ggacgagagc gtggacgacc   240
        tggcgcagca aaaacctcgc tctatcctgt ccaagtatga cgaagagctt gaaggggagc   300
        ggccacattc cttccgcttg gagcagggcg gcacggctga tggcctgcgg agcgggagc    360
        tggaggagat ccgggccaag ctgcggctgc aggctcagtc cctgagcaca gtggggcccc   420
        ggctggcctc cgaatacctc acgcctgagg agatggtgac ctttaaaaag accaagcgga   480
   45   gggtgaagaa aatccgcaag aaggagaagg aggtagtagt gcgggcagat gacttgctgc   540
        ctctcgggga ccagactcag gatggggact ttggttccan aactgcgggg gacngggtcc   600
        cccccccaatg tnccgaatgg aggaagaaga angaaccttg tgccttaacc cctggcgtcg   660
        gacgacaccc gaatnggaga acattggaca tcattgatta agaaggaagg tggagcttca   720

   50   <210> 481
        <211> 582
        <212> DNA
        <213> Homo sapiens

   55   <400> 481
        aaggagggag ctttatttaa tatgaaggtt gaggcagggc cggggcggga gggcgctgtc    60
        acttggtgat ggtgttcgcg ttcatgctct tgccgctgcc gctgagcacg atgtaggggg   120
        tcttctgagc cttctgcttc tcctggagca gggccacggt gcccaggggc gtgtcgctgg   180
        agctcatctt cttcaggagc gcctcctcgt ccagcttctt catccgccgc tctgtcttca   240
   60   tcttgcctga gcccttgcca tggaagcggt gcgacagctg ccggaaagcc tccttgggtg   300
        tgagtttccg gcccgtctca tccacgtatt cgatcttaac gtcgggtttg tagccgtcct   360
        tctccttgaa gtcctgtgtg aagcctcggt attcctccct ccggctgtac ttgtcatcga   420
        tggccatctt atcctcgatg cantacacgg ctgagggcag cgacttgttg ggggccttac   480
```

160

```
ccgggccacc ttctgactgt ggtctccaac aaccctttgt tctgacacaa gaacagggca     540
actgccagcc ccctattcac gatcgggtcc tcgtcaagat gg                       582
```

```
        <210> 482
        <211> 704
        <212> DNA
        <213> Homo sapiens


        <400> 482
aagatggcga aggtctcaga gctttacgat gtcacttggg aagaaatgag agataaaatg      60
agaaaatgga gagaagaaaa ctcaagaaat agtgagcaaa ttgtggaagt tggagaagaa     120
ttaattaatg aatatgcttc taagctggga gatgatattt ggatcatata tgaacaggtg     180
atgattgcag cactagacta tggtcgggat gacttggcat tgttttgtct tcaagagctg     240
agaagacagt tccctggcag tcacagagtc aagcgattaa caggcatgag atttgaagcc     300
atggaaagat atgatgatgc tatacagcta tatgatagga ttttacaaga agatccaact     360
aacactgctg caagaaagcg taagattgcc attcgaaaag cccagggaa aaatgtggag      420
gccattcggg agctgaatga gtatctggaa caatttgttg gagaccaaga agcctggcat     480
gaacttgcag aactttacat caatgaacat gactatgcaa aagcagcctt ttgtttagag     540
gaactaatga tgactaatcc acacaaccac ttatactgtc agcagtatgc tgaagttaag     600
tatacccaan ggtggacttg aaaacctcga acttttcaag aaagtatttt gcacaggcca     660
ttgaaactgg accacagaaa ttttgaggag ctttggtttg gacc                     704
```

```
        <210> 483
        <211> 638
        <212> DNA
        <213> Homo sapiens


        <400> 483
caagtttaat aaatcatcat ggtttatttta acaaggttat actacattag agttttatat      60
atatacatgt atatgtgata tgaagagact gatgtacaat caataagtct taaatctctc     120
ttccatggat ttcccccatc tccccactta gcagtaaaag gcatttttag gtttatataa     180
acacattctt tacaactgcc ttcttaacag aaaattactg tagtatataa atagcactga     240
gcatttagta aataagttac aggccaataa gttcaattgt gcagttgnga aatctaatgt     300
caaagagttt ttgaaacctt aanactgggt gatctgcaat gtttccaaca tgtcttcgac     360
agccttaana gaatatttgg tttccttctt acttcgacct gcaaactgat aagctctgtt     420
tatttgacta gctgcccaac tagcatattt catgttgcct tttccgtttt tgcacttgct     480
tttggattan aagcaatatg acttgccgac atataaagtc caaacaaagc tctcatattt     540
ctgttgttca gtttcaatgc ctgtgcaaaa tactttcttg aaagttcgag ggtttcaagt     600
ncaccttggg tatacttaac ttcagcatac tgctgaca                           638
```

```
        <210> 484
        <211> 771
        <212> DNA
        <213> Homo sapiens


        <400> 484
ttatagtaaa gatacctctt tacggactcc acttatgact ccctaaagcc catgtcgaag      60
cccccatcgc tgggtcaata gtacttgccg cagtactctt aaaactaggc ggctatggta     120
taatacgcct cacactcatt ctcaaccccc tgacaaaaca catagcctac cccttccttg     180
tactatccct atgaggcata attataacaa gctccatctg cctacgacaa acagacctaa     240
aatcgctcat tgcatactct tcaatcagcc acatagccct cgtagtaaca gccattctca     300
tccaaacccc ctgaagcttc accggcgcag tcattctcat aatcgcccac ggacttacat     360
cctcattact attctgccta gcaaactcaa actacgaacg cactcacagt cgcatcataa     420
tcctctctca aggacttcaa actctactcc cactaatagc ttttttgatga cttctagcaa     480
gcctcgctaa cctcgcctta ccccccacta ttaacctact gggagaactc tctgtgctag     540
taaccacgtt ctcctgatca aatatcactc tcctacttac aggactcaac atactagtca     600
cagccctata ctccctctac atatttacca caacacaatg gggctcactc acccaccaca     660
ttaacaacat aaaaccctca ttcacacgag aaaacaccct catgttcata cacctatccc     720
ccattctcct cctatccctc aaccccgaca tcattaccgg gttttcctct t             771
```

```
        <210> 485
        <211> 728
        <212> DNA
```

161

<213> Homo sapiens

<400> 485
```
aattaggagg gcactggccc ccaacaggca tcaccccgct aaatccccta gaagtcccac      60
tcctaaacac atccgtatta ctcgcatcag gagtatcaat cacctgagct caccatagtc     120
taatagaaaa caaccgaaac caaataattc aagcactgct tattacaatt ttactgggtc     180
tctattttac cctcctacaa gcctcagagt acttcgagtc tcccttcacc atttccgacg     240
gcatctacgg ctcaacattt tttgtagcca caggcttcca cggacttcac gtcattattg     300
gctcaacttt cctcactatc tgcttcatcc gccaactaat atttcacttt acatccaaac     360
atcactttgg cttcgaagcc gccgcctgat actggcattt tgtagatgtg gtttgactat     420
ttctgtatgt ctccatctat tgatgagggt cttaaaaaaa aaaaaaaaaa ctcgagacta     480
gcaagaagaa gagaagagaa gaaatgccga tatattaaat gaaaaaatta gggaagaatt     540
aggaagaatc gaagagcagc ataggaaaga gttagaagtg aaacaacaac ttgaacaggc     600
tctcagaata caagatatag aattgaagag tgtagaaagt aatttgaatc angtttctca     660
cactcatgaa aatgaaaatt atctcttaca tgaaaaattg ctggtggaaa aaaggaaatt     720
gccatgct                                                              728
```

<210> 486
<211> 742
<212> DNA
<213> Homo sapiens

<400> 486
```
ganacanagt ctcactntgt cncccaggct ggagtgcagn ggcgagattc gtgaacaagt      60
aattcttcac nctgntattt tatgtctgta ggcttcagga anaaatcatg aattttctt      120
ctaaaataag tnttctgttg acncanacta ttggtaanat tttcaacata aggggatgct     180
aggactggcc ncctancatg agttgngagt aaagatctgg tctgttgttt ctccaaaana     240
agtttcttac tgcttggctc tcatgagttt tctgnttctg ctttctcttt ttcatattga     300
tatatacggn tttttaaatg gntattggaa ttaaatatct cctcattttt ctcttttagg     360
anatgatgnt gcnttttcct ctcaagaaaa tgaatatcaa ttgntatctt gcttttgntg     420
gcanctttct tatgngcntg aactaattgc tgntgaagcc acatattttt gctttgtagt     480
tgaaataatt tctgatctaa agacnccngc tgntcagngn gtttgttcac attatcttgt     540
tcgttttgat acatgtgttc agcttccttc atttgacact gngtttcacg ttgggctctt     600
tgggcntgtt ctgaaaccaa tgtnttttct cttanagcat ctncngcata attgaaaata     660
atttttangc ttttggattt cctttgganc ttcaaaaagn ggtgatggga cccctcattg     720
ggtntatatc ggctactcac at                                              742
```

<210> 487
<211> 757
<212> DNA
<213> Homo sapiens

<400> 487
```
ttatagtaaa gatacctctt tacggactcc acttatgact ccctaaagcc catgtcgaag      60
cccccatcgc tgggtcaata gtacttgccg cagtactctt aaaactaggc ggctatggta     120
taatacgcct cacactcatt ctcaacccccc tgacaaaaca catagcctac cccttccttg     180
tactatccct atgaggcata attataacaa gctccatctg cctacgacaa acagacctaa     240
aatcgctcat tgcatactct tcaatcagcc acatagccct cgtagtaaca gccattctca     300
tccaaacccc ctgaagcttc accggcgcag tcattctcat aatcgccac ggacttacat       360
cctcattact attctgccta gcaaactcaa actacgaacg cactcacagt cgcatcataa     420
tcctctctca aggacttcaa actctactcc cactaatagc ttttttgatga cttctagcaa     480
gcctcgctaa cctcgcctta ccccccacta ttaacctact gggagaactc tctgtgctag     540
taaccacgtt ctcctgatca aatatcactc tcctacttac aggactcaac atactagtca     600
cagccctata ctccctctac atatttacca aacacaatg gggctcactc ccccacatt       660
aacaacataa aaccctcatt cacacgagaa aacaccctca tgtcatacac ctatccccat     720
tctctctatt cctcaacccg aatattaccg ggtttct                              757
```

<210> 488
<211> 732
<212> DNA
<213> Homo sapiens

<400> 488

```
aagaggaaaa cccggtaatg atgtcggggt tgagggatag gaggagaatg ggggataggt      60
gtatgaacat gagggtgttt tctcgtgtga atgagggttt tatgttgtta atgtggtggg     120
tgagtgagcc ccattgtgtt gtggtaaata tgtagaggga gtatagggct gtgactagta     180
tgttgagtcc tgtaagtagg agagtgatat ttgatcagga gaacgtggtt actagcacag     240
agagttctcc cagtaggtta atagtggggg gtaaggcgag gttagcgagg cttgctagaa     300
gtcatcaaaa agctattagt gggagtagag tttgaagtcc ttgagagagg attatgatgc     360
gactgtgagt gcgttcgtag tttgagtttg ctaggcagaa tagtaatgag gatgtaagtc     420
cgtgggcgat tatgagaatg actgcgccgg tgaagcttca gggggtttgg atganaatgg     480
ctgttactac nagggctatg tggctgattg aagagtatgc aatgagcgat tttaggtctg     540
tttgtcgtaa gcanatggag cttgttataa ttatgcctca tagggatagt ncaaggaang     600
ggtaggctnt tgttgtttgt ccaggggggtt ganaatgagt gtgaggcggt nttataccat     660
anccgcctan ttttaananaa tcttgnggca agtncttttg acccnacnat ggggggcttca     720
cattggcctt ta                                                         732
```

```
        <210> 489
        <211> 841
        <212> DNA
        <213> Homo sapiens


        <400> 489
aggagatcca ccgcaagctc tcagaggcca ccagggagct gcagaacgca cccgacgcca      60
tccctgagag cggcgtggag cccccagccc tggacacggc ctgggtggag gccacgcgga     120
agaaggcgct gctgaagctg gagaagctgg acacagacct gaagaactac aagggcaact     180
ccatcaaaga gagcatccgg cgcggccacg acgacctggg cgaccactac ctggactgtg     240
gggacctcag caacgccctc aagtgctatt cccgggcccg ggactactgc accagcgcca     300
aacacgtcat caacatgtgc ctcaatgtca tcaaggtcag cgtctacttg cagaattggt     360
ctcatgtgct cagctacgtc agcaaggctg agtccacccc agagattgcc gagcagcgag     420
gagagcgtga cagccagacc caggccatcc tcaccaagct caagtgtgcc gcaggcttgg     480
cagagctggc cgccaggaag tacaagcagg ctgccaagtg cctcctgctg gcttcctttg     540
atcactgtga cttccctgag ctgctgtccc ccagcaacgt ggccatctac ggtggcctgt     600
gcgccttggc tacctttgac cggcaggagc tgcagcgcaa tgtcatcttc agcagctcct     660
tcaagttgtt cttggagctg gagccacang tccgagacat catctttaaa ttctacgagt     720
ncaagtacgc ctcatgtctt aagaatgctg gaccaagaat gaaaggacaa ccttgctcct     780
tggacattgt atnttgggcc cccattgtta aggacccctg tacacccaa atttccaaac     840
c                                                                     841
```

```
        <210> 490
        <211> 583
        <212> DNA
        <213> Homo sapiens


        <400> 490
aggagatcca ccgcaagctc tcagaggcca ccagggagct gcagaacgca cccgacgcca      60
tccctgagag cggcgtggag cccccagccc tggacacggc ctgggtggag gccacgcgga     120
agaaggcgct gctgaagctg gagaagctgg acacagacct gaagaactac aagggcaact     180
ccatcaaaga gagcatccgg cgcggccacg acgacctggg cgaccactac ctggactgtg     240
gggacctcag caacgccctc aagtgctatt cccgggcccg ggactactgc accagcgcca     300
aacacgtcat caacatgtgc ctcaatgtca tcaaggtcag cgtctacttg cagaattggt     360
ctcatgtgct cagctacgtc agcaaggctg agtccacccc agagattgcc gagcagcgag     420
gagagcgtga cagccagacc caggccatcc tcaccaagct caagtgtgcc gcaagcttgg     480
caaaactggn cgccaggaan tacaaacagg cttgccaagt gctctgctgg cttctttgat     540
actgngactt cctgacttgt tgtccccaca acgtggcatc tac                       583
```

```
        <210> 491
        <211> 707
        <212> DNA
        <213> Homo sapiens


        <400> 491
aacgctgagt ctgctctttta atggacaccg cccacttgtc tgcacctgac tgaggcggga      60
acaggagggg tctgggaaat ggtgccactg ggcctgggtg ccgcacagtc tgctccctgg     120
ggacagaaac ccacagggtc gagccctgca ggcctctcct tccaggaagg gccacaacta     180
gcagccgcct gcctcctcag ccccagggag ggcacacagg ctgggtggca cccagtggcc     240
```

163

```
        aggcccctta gctgggccgc aggcagcact gagccgcctg gaggtccgag gtccgtggag    300
        gtggggaggg ggtgcaaatg tcctggaggc caaggttcac ccctcacatg ttggtgctca    360
        tccgggactg gctgttggct ggagtcagct ccccctggct cccttctctg ggcggggact    420
        tgacatggat ctggttgcgg agcacagctg cccgcagcat catggccttg gcgcggcgct    480
  5     ggaactcctt gcccatcaac aganacttct caaaggtggt gctgcgctga tccacgtncc    540
        nggccgtata ggatcttgct tgtgtgagtc cacacnggca ctgatcaacc ccttcaagat    600
        taactgcgtc aactcgtcct ncaaggcngg caccgtggta tttgaaaggt tgccccatnc    660
        tatgcattgt cggcttgaaa cgtaagggct tgaaatactg gaatgaa                  707


 10         <210> 492
            <211> 765
            <212> DNA
            <213> Homo sapiens


 15         <400> 492
        gcggcgtgga gcccccagcc ctggacacgg cctgggtgga ggccacgcgg aagaaggcgc     60
        tgctgaagct ggagaagctg gacacagacc tgaagaacta caagggcaac tccatcaaag    120
        agagcatccg gcgcggccac gacgacctgg gcgaccacta cctggactgt ggggacctca    180
        gcaacgccct caagtgctat tcccgggccc gggactactg caccagcgcc aaacacgtca    240
 20     tcaacatgtg cctcaatgtc atcaaggtca gcgtctactt gcagaattgg tctcatgtgc    300
        tcagctacgt cagcaaggct gagtccaccc cagagattgc cgagcagcga ggagagcgtg    360
        acagccagac ccaggccatc ctcaccaagc tcaagtgtgc cgcaggcttg gcagagctgg    420
        ccgccaggaa gtacaagcag gctgccaagt gcctcctgct ggcttccttt gatcactgng    480
        acttccctga gctgctgtcc cccaacaacg tggccatcta cggtggcctg tgcgccttgg    540
 25     ctaccttttg aaccggcagg aacctgcaan cgcaatgtca tnttccagca acttcctta     600
        agttgttctt ggaacctgga gccncaaggt nccaaaacat tatcttnaaa attctaccaa    660
        gttccaagta ccccttatt gttnttnaaa aatgccttgg accgaaaaat gaaanggaca    720
        aacctggttc cttgggaaaa tgttttnttt gggccccca ttgtt                     765


 30         <210> 493
            <211> 721
            <212> DNA
            <213> Homo sapiens


 35         <400> 493
        ggaagaaggc gctgctgaag ctggagaagc tggacacaga cctgaagaac tacaagggca     60
        actccatcaa agagagcatc cggcgcggcc acgacgacct gggcgaccac tacctggact    120
        gtggggacct cagcaacgcc ctcaagtgct attcccgggc ccgggactac tgcaccagcg    180
        ccaaacacgt catcaacatg tgcctcaatg tcatcaaggt cagcgtctac ttgcagaatt    240
 40     ggtctcatgt gctcagctac gtcagcaagg ctgagtccac cccagagatt gccgagcgag    300
        gagagcgtga cagccagacc caggccatcc tcaccaagct caagtgtgcc gcaggcttgg    360
        cagagctggc cgccaggaag tacaagcagg ctgccaagtg cctcctgctg cttcctttg     420
        atcactgtga cttccctgag ctgctgtccc cagcaacgt ggccatctac ggtggcctgt     480
        gcgccttggc tacctttgac cggcaggagc tgcagcgcaa tgtcatcttc agcagctcct    540
 45     tcaagttgtt cttggagctg gagccacang tccgagacat catctttaaa ttctacgagt    600
        ncaagtacgc ctcatgtctt aagaatgctg gaccaagaat gaaaggacaa ccttgctcct    660
        tggacattgt atnttgggcc cccattgtta aggacccctg tacaccccaa atttccaaac    720
        c                                                                    721


 50         <210> 494
            <211> 550
            <212> DNA
            <213> Homo sapiens


 55         <400> 494
        aacgctgagt ctgctctta atggacaccg cccacttgtc tgcacctgac tgaggcggga      60
        acaggagggg tctgggaaat ggtgccactg ggcctgggtg ccgcacagtc tgctccctgg    120
        ggacagaaac ccacagggtc gagccctgca ggcctcacct tccaggaagg gccacaacta    180
        gcagccgcct gcctcctcag ccccagggag ggcacacagg ctgggtggca cccagtggcc    240
 60     aggcccctta gctgggccgc aggcagcact gagccgcctg gaggtccgag gtccgtggag    300
        gtggggaggg ggtgcaaatg tcctggaggc caaggttcac ccctcacatg ttggtgctca    360
        tccgggactg gctgttggct ggagtcagct cccccctggct cccttctttg ggcggggact    420
        tgacatggat cttggttgcg gancacaant nccctcanca tcatggccnt ggnnccggng    480
```

```
ctggaactct tcccatnaac anaaacttnt taaanggggg ngctgngctg atccncnttc     540
cgggcctnta                                                           550
```

        <400> 495
```
ggaagaaggc gctgctgaag ctggagaagc tggacacaga cctgaagaac tacaagggca     60
actccatcaa agagagcatc cggcgcggcc acgacgacct gggcgaccac tacctggact     120
gtggggacct cagcaacgcc ctcaagtgct attcccgggc ccgggactac tgcaccagcg     180
ccaaacacgt catcaacatg tgcctcaatg tcatcaaggt cagcgtctac ttgcagaatt     240
ggtctcatgt gctcagctac gtcagcaagg ctgagtccac cccagagatt gccgagcgag     300
gagagcgtga cagccagacc caggccatcc tcaccaagct caagtgtgcc gcaggcttgg     360
cagagctggc cgccaggaag tacaagcagg ctgccaagtg cctcctgctg gcttcctttg     420
atcactgtga cttccctgag ctgctgtccc ccagcaacgt ggccatctac ggtggcctgt     480
gcgccttggc tacctttgac cggcaggagc tgcagcgcaa tgtcatcttc agcagcttct     540
tcaagttgtt cttggagctg gagccacagg tncgagacat catctttaaa ttctacgaag     600
tncaagtacc cctcatgttt tnaagatgct tggacgaaaa tgaaaggaca accttgctnc     660
tggacaatgt atnttggccc ccattgttan ggaccctgta caacccaaaa tttcgcaacc     720
ggngcccctc attcagtt                                                  738
```

        <400> 496
```
gccagattct gcacaagctc catttatcgt tggttcttgc ttttttcctt ctgtgttttt     60
aattttttaa aaaacattgt atgttctaga gaactagctt cacaaaaggt cggtggctga     120
tgatctttca gctaagattt caaatgtaga agaacaattc aaaatgctat cactgtgtat     180
gtaagaagga tggggcagat ttcattttac cctctagtct ccctcaatgc atgcacggat     240
ttatctgtac gctaagctct ctgctctgca tctgtagctc cttgtggatt atattgtctc     300
agtgatcaga aatgattttc tcggatatga acaccgtttc tggctcccct aaagtgcatc     360
ctcctaatgg gacccggttt tacacttttc aagaatttgc tgcactgaca aaagaattaa     420
atgcctgcag ggaacaactt ctagaaaagg aagaagaaat ctctgaactt aaagctgaaa     480
gaaacaacac aagactatta ctggagcatt tggagtgcct tgtgtcacga catgaaagat     540
cactaagaat gacggtggta aaacggcaag cccagtctcc ctcaggagta tccagtgaag     600
ttgaagttct caaggcactg aaatctttgt ttgagcacca caaggccttg gatgaaaagg     660
taagggagcg actgagggtt tctttagaaa gagtctctgc actggaagaa gaactagctg     720
ctgctaatca ggagattgtt gccttgcgtg aacaaaatgt tcatatacaa agaaaaatgg     780
catcaagcga gggatccaca gagtcagaac atcttgaagg gatggaacct ggacagaaag     840
tccatgagaa gcgtttgtcc aatggttcta tagactcaac cgatgaaact agtcaaatag     900
ttgaactaca agaattgctt gaaaagcaaa accaatgaaa tggcccaaat gaaaaaacgt     960
ttaacagccc tttcttccg agtggggaga ngtggacaag gaagccgaga cngccaggaa     1020
aggatctctt taaacccgaa gaaatggacc cccagtttca aagggacatt tagggagggc    1080
ct                                                                   1082
```

        <400> 497
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tatcactgag aacagatggg caggtccaca gcactgccag attctgcaca agctccattt     60
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ctagagaact agcttcacaa aaggtcggtg gctgatgatc tttcagctaa gatttcaaat     180
gtagaagaac aattcaaaat gctatcactg tgtatgtaag aaggatgggg cagatttcat     240
tttaccctct agtctccctc aatgcatgca cggatttatc tgtacgctaa gctctctgct     300
ctgcatctgt agctccttgt ggattatatt gtctcagtga tcagaaatga ttttctcgga     360
tatgaacacc gtttctggct cccctaaagt gcatcctcct aatgggaccc ggttttacac     420
ttttcaagaa tttgctgcac tgacaaaaga attaaatgcc tgcagggaac aacttctaga     480
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165

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     aaaggaagaa gaaatctctg aacttaaagc tgaaagaaac aacacaagac tattactgga    540
     gcatttggag tgccttgtgt cacgacatga aagatcacta agaatgacgg tggtaaaacg    600
     gcaagcccag tctccctcag gagtatccaa gtgaaagttg aagttctcaa ggcactggaa    660
     atctttgttg gac                                                       673
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          <400> 498
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     aaaccctgct cttgggnggg ngngggtata atactaagtt ganatgatat catttacggg     60
     ggaaggcgct ttgtgaagta ggccttattt ctnttgtcct ttcgtacagg gaggaatttg    120
     aagtanatag aaaccgacct ggattactcc ggtctgaact canatcacgt aggactttaa    180
     tcgttgaaca aacgaacctt taatagcggc tgcaccatcg ggatgtcctg atccaacatc    240
     gaggtcgtaa accctattgt tgatatggac tctaaaatag gattgcgctg ttatccctag    300
     ggtaacttgt tccgttggtc aagttattgg atcaattgag tatagtagtt cgctttgact    360
     ggngaagtct tancatgtac tgctcggagg ttgggttctg ctccgaggtc gccccaaccg    420
     aaatttttaa tgcaggtttg gtagtttagg acctgtgggt ttgttaggta ctgtttgcat    480
     taataaatta aagctccata gggcttctcg tcttgctgtg tcatgccccc tnttacgggc    540
     aggcaatttc actgggtaaa antaaaanac agctgaaccc tcgtggagcc ttcatacagg    600
     gncctnttta angaacaagt gattttctcc tttgcacngg tangggaccc cggccgttaa    660
     acatgtgtan tgggcangcg ggcccttaat ctggngangc ctanaaggng atgttttgg    720
     taanaagcgg gggtanaatt tgccgangtc cctttacttt tttaaccttc cttttaacct    780
     cccgggttgg gtgacc                                                    796
```

          <400> 499
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     gcagggaaca acttctagaa aaggaagaag aaatctctga acttaaagct gaaagaaaca    180
     acacaagact attactggag catttggagt gccttgtgtc acgacatgaa agatcactaa    240
     gaatgacggt ggtaaaacgg caagcccagt ctccctcagg agtatccagt gaagttgaag    300
     ttctcaaggc actgaaatct ttgtttgagc accacaaggc cttggatgaa aaggtaaggg    360
     agcgactgag ggtttcttta gaaagagtct ctgcactgga agaagaacta gctgctgcta    420
     atcaggagat tgttgccttg cgtgaacaaa atgttcatat acaaagaaaa atggcatcaa    480
     gcgagggatc cacagagtca gaacatcttg aagggatgga acctggacag aaagtccatg    540
     agaagcgttt gtccaatggt tctatagact caaccgatga aactagtcaa atagttgaac    600
     tacaagaatt gcttgaaaag caaaaccaat gaaatggccc aaatgaaaaa acgtttaaca    660
     gcccttttctt ccgagtgggg gagangtgga caaggaagcc gagacngcca ggaaaggatc    720
     tctttaaacc cgaagaaatg gaccccagt ttcaaaggga catttaggga gggcct        776
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          <400> 500
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     ttactgtttg ttacaagtgt tttgggtcct tacttanaag ttcagtgatg tttctgtgac    120
     cagaaataca tcataggaat gtcactctta tttatgtcag ttagcctatg gtaaaagtgg    180
     ttttattata cgtctttcac ttaagctcag ttccaagacc tattgaccac gttaagtaag    240
     gacttactac atactaagca tgaaaggaga caggttactg tcagagacag gagttacaaa    300
     tgcaattgac cctcgaatga catagtgtga actgcatggg tgctcttgtt agcanatatt    360
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     aactttggga ggccgaggcg gcggatcac gaggtcagga gatccagacc atcctggcta    480
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     aggcgcctgt agtcccanct actcgggagg ctgtggcagg agaatggcgt gaacctggga    600
     ggcagagttt gcagtgagcc cgagattgcg ccctgcactc cacctgagtg acaaancgag    660
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        aatctggₑtg gattggaatg atgtctgctg catcatcagg gnagatggga atcctgggca      720
        acttt                                                                  725


                <210> 501
  5             <211> 728
                <212> DNA
                <213> Homo sapiens


                <400> 501
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        gagaactagc ttcacaaaag gtcggtggct gatgatcttt cagctaagat ttcaaatgta     120
        gaagaacaat tcaaaatgct atcactgtct ccttgtggat tatattgtct cagtgatcag     180
        aaatgatttt ctcggatatg aacaccgttt ctggctcccc taaagtgcat cctcctaatg     240
        ggacccggtt ttacactttt caagaagcac tgacaagatg tctggcttta acccatactg     300
 15     aggtggtatg aatgatttat tcttccagga atttgctgca ctgacaaaag aattaaatgc     360
        ctgcagggaa caacttctag aaaaggaaga agaaatctct gaacttaaag ctgaaagaaa     420
        caacacaaga ctattactgg agcatttgga gtgccttgtg tcacgacatg aaagatcact     480
        aagaatgacg gtggtaaaac ggcaagccca gtctccctca ggagtatcca gtgaagttga     540
        agttctcaag gcactgaaat ctttgtttga gcccacaagg ccttggatga aaangtaang     600
 20     gagcgactga gggtttcttt anaaagaagt ctctgcctgg aagaaaaaac tagctgctgc     660
        taatcaagga naatggttgc cttgcgtgaa ccaaaatgtt catntttcca aagaaaaatg     720
        gcttcaag                                                              728


                <210> 502
 25             <211> 722
                <212> DNA
                <213> Homo sapiens


                <400> 502
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        gtcttggctg ctgttggcac taccaagccc gaggctttct ggctcaagag agacagataa     120
        actacttcga gcatcattgt ggtaggaaga agggagagtg tgagtcattc tgagggctct     180
        aggggtagga ggaggagaag tttcacattt aattgttgct ttgtcctctc gaccatcttc     240
        ttccacaact gcaatctttc tccgatgttt cctcanatca cttggcagtg tcatgactcc     300
 35     catccgatcc atttccctgg cagggcttcg aggggtgagc tttggagttg agtgtccact     360
        ggggggagat gaactggcca gcgatgaagc tgtaacagag gcagtaatgg aggtacctgg     420
        gtggaccctt gccaaattca ggccttcgag gctcacacta gccactctat tttcaatttc     480
        ttcagcacgc aactctgtag attctttttc ttcctgaatt agcctgattt ctttgttgat     540
        ggcatccaat tgttcctgaa gcatcatggc tagcgtctgg gcatcggaat gaccacttgg     600
 40     aagagagaag atccntttga gctnaaaatt ggttctctgn catcatcatc aatatcaaga     660
        catttcaatg tcacttttca aaagggggg nttgcttaat acctncaatc tggtgaagtt     720
        ct                                                                    722


                <210> 503
 45             <211> 942
                <212> DNA
                <213> Homo sapiens


                <400> 503
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        aattttttaa aaaacattgt atgttctaga gaactagctt cacaaaaggt cggtggctga     120
        tgatctttca gctaagattt caaatgtaga agaacaattc aaaatgctat cactgtgtat     180
        gtaagaagga tggggcagat ttcattttac cctctagtct ccctcaatgc atgcacggat     240
        ttatctgtac gctaagctct ctgctctgca tctgtagctc cttgtggatt atattgtctc     300
 55     agtgatcaga aatgattttc tcggatatga acaccgtttc tggctcccct aaagtgcatc     360
        ctcctaatgg gacccggttt tacacttttc aagaatttgc tgcactgaca aaagaattaa     420
        atgcctgcag ggaacaactt ctagaaaagg aagaagaaat ctctgaactt aaagctgaaa     480
        gaaacaacac aagactatta ctggagcatt tggagtgcct tgtgtcacga catgaaagat     540
        cactaagaat gacggtggta aaacggcaag cccagtctcc ctcaggagta tccagtgaag     600
 60     ttgaagttct caaggcactg aaatctttgt ttgagcaccc aaggccttgg atgaaaaggt     660
        aagggagcga ctggagggtt tctttagaaa gagtctctgc ctggaagaaa actagctgct     720
        gctaatcagg agatggtggc cttgcgtgaa ccaaaatgtt catatncaaa gaaaaatggc     780
        ttcaagccga gggatcccnc agagtcagaa catntttgaa gggatggaac ccgggacaga     840
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aagtccttgn aaaagcgttg ntccaatggg ttttttagac ctcacccgat gnaaactggt    900
ccaatagntg gacttccaag aaatggntgg aaaagccaaa ct                      942
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        <210> 504
        <211> 717
        <212> DNA
        <213> Homo sapiens

        <400> 504
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gagatgtgaa cctttcacca tgaaaatgtt aaaagatata aaggaaggag ttaaacaata     60
tggatccaac tccccttata taagaacatt attagattcc attgctcatg gaaatagact    120
tactccttat gactgggaaa ttttggccaa atcttccctt tcatcctctc agtatctaca    180
gtttaaaacc tggtggattg atggagtaca agaacaggta cgaaaaaatc aggctactaa    240
gcccactgtt aatatagacg cagaccaatt gttaggaaca ggtccaaatt ggagcaccat    300
taaccaacaa tcagtgatgc agaatgaggc tattgaacaa gtaagggcta tttgcctcag    360
ggcctgggga aaaattcagg acccaggaac agctttccct attaattcaa ttagacaagg    420
ctctaaagag ccatatcctg ctttgtggca agattacaag atgctgctca aaagtctatt    480
acagatgaca atgcccgaaa agttattgta gaattaatgg cctatgaaaa tgcaaatcca    540
gaatgtcagt ccggcataaa gccattaaaa gggaaagttc nacangagtt gatgtattac    600
agaatatgtg aagntttgta tgagattgga ggagctatgc ttaagnaatg cttatggntn    660
aagccatgan ggggctcact ctagangaca agtanaaatt tgggaaaaaa tggttta      717
```

        <210> 505
        <211> 758
        <212> DNA
        <213> Homo sapiens

        <400> 505
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gtttaaccaa ttgagctttg agtgttctat tagttctttc aattatggcc tgtccttggg     60
aattatagag aattcctatt gtatgtgtaa ttttccactg atttaanaat ttttgaaatg    120
ctttactaca gtaacctggc ccattgtctg ttttaacttt ttctggaact cccatgacag    180
gaaaacaaga taataaatgt cttttaacat gggaagtact ttctcctgtc tggcaggttg    240
cccatatgaa atgtgaataa gtatcaactg tcacatggac aaatgacaat tttccaaatg    300
aaggtacgtg catgacatcc atttgccata acacattagg acatagacct ctgggattaa    360
ctcttgcctc ctgagtggcc aggtgtagaa tctgacactg ggtgcaatgt tgtacaatat    420
tttttggctg tttccatgtg atatcaaatt tatttttaa tcctattgca tttacatgag    480
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catttgcttt anttaaaggc ccctggtaaa ttaagtgtgg ctccnaatnt gagtnatata    600
aaatggggaa atttcntttt cttacatttt ggnggaacca aattaaacna gcngggttta    660
accggatcat ccattaatgg attttggatt aagggctttt ctcaaatatt cctttgggag    720
cccggtacct acattatgcc aaaaatctgg ataccaat                           758
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        <210> 506
        <211> 748
        <212> DNA
        <213> Homo sapiens

        <400> 506
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agcaacccac agcgatggcg tctaattcac cagcaacaca ggacgcggcg ctgtatcctc     60
agccgcccac tgtgagactt aatcctacag catcacgtag tggacagggt ggtgcactgc    120
atgcagtcat tgatgaagcc agaaaacagg gcgatcttga ggcatggcgg ttcctggtaa    180
ttttacaact ggtacaggcc ggggaagaga ctcaagtagg agcgcctgcc cgagctgaga    240
ctagatgtga acctttcacc atgaaaatgt taaagatat aaaggaagga gttaaacaat    300
atggatccaa ctccccttat ataagaacat tattagattc cattgctcat ggaaatagac    360
ttactcctta tgactgggaa attttggcca atcttcctt tcatcctctc agtatctaca    420
gtttaaaacc tggtggattg atggagtaca agaacaggt acgaaaaaat caggctacta    480
acccctgtta tatagacgca gaccaattgt taggaacagg tcaaattgga gcccattaac    540
caacaatcat gatgcaaaat gaggctnttg acaagtaang gctttgcct caaggcctgg    600
ggaaaaatca ggaccaagaa cagtttcctt ttattnatta gacnagggtt taaaagcatt    660
tctgctttgt gngagaatac aaaagctggt caaaatnttt ncaatgaaat gcccnaaagt    720
ttggnaatta tggctttgaa atccaatc                                      748
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        <210> 507

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        <211> 742
        <212> DNA
        <213> Homo sapiens

5           <400> 507
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        aattatagag aattcctatt gtatgtgtaa ttttccactg atttaagaat ttttgaaatg    120
        ctttactaca gtaacctggc ccattgtctg ttttaacttt ttctggaact cccatgacag    180
        gaaaacaaga taataaatgt cttttaacat gggaagtact ttctcctgtc tggcaggttg    240
10      cccatatgaa atgtgaataa gtatcaactg tcacatggac aaatgacaat tttccaaatg    300
        aaggtaccgt gcatgacatc catttgccat aacacattag gacatagacc tctgggatta    360
        actcttgcct cctgagtggc caggtgtaga atctgacact gggtgcaatg ttgtacaata    420
        ttttttgtct gtttccatgt gatatcaaat ttatttttta atcctattgc atttacatga    480
        gtcaaggcat gaagttcttg tgcttccatg aatgcagatg atctagcaag tcagcttggt    540
15      catttgcttt aattaaangc cctggtaaat tagtgngngc tcgaatatga gtaatataaa    600
        atgggaaatt tcttttttctt acattttggg nggaaccaaa ataaacaagc gggggttaac    660
        tggatcatnc ataatggatt tgantanggc tctctcaata tnccttggaa cccggtccta    720
        catttgcaga atctggatcc at                                             742

20          <210> 508
        <211> 718
        <212> DNA
        <213> Homo sapiens

25          <400> 508
        agtgtggtca ttgaggacaa gttgacgaga gagtcccaag tacgtccacg gtcagccttg    60
        cggtaagctt gtgtgcttag aggaacccag ggtaacgatg gggcaaactg aaagtaaata    120
        tgcctcttat ctcagcttta ttaaaattct tttaagaaga ggggggagtta gagcttctac    180
        agaaaatcta attacgctat ttcaaacaat agaacaattc tgcccatggt ttccagaaca    240
30      gggaacttta gatctaaaag attgggaaaa aattggcaaa gaattaaaac aagcaaatag    300
        ggaaggtaaa atcatcccac ttacagtatg gaatgattgg gccattatta aagcaacttt    360
        agaaccattt caaacaggag aagatattgt ttcagtttct gatgcccctа aaagctgtgt    420
        aacagattgt gaagaagagg cagggacaga atcccagcaa ggaacggaaa gttcacattg    480
        taaatatgta gcagagtctg taatggctca gtcaacgcaa aatgttgact acagtcaatt    540
35      acaggagata atataccctg aatcatcaaa attgggggaa ggaggtccag aatcattggg    600
        gccatcagag cctaaaccac gatcgccatc aactcctcct tccgcggttc aaatgcctgt    660
        acattcaacc tcaaaccgca ggttagacaa gcccaaaccc caagagaaa atcaagtt      718

            <210> 509
40          <211> 725
        <212> DNA
        <213> Homo sapiens

            <400> 509
45      gattttttttc agcctcaatt gggacttctt tcctagtccc tttttaggga gctatcccat    60
        tttggtcatg atttttttat tcctgggggct gtatatggag gctgggatag taatctctgc    120
        atgccattgt tgtaacaagt ctcggcccca taaattgatt ggaatgaagt gatcacaggc    180
        tgaaccgtac tttcttgatt atcanatcct ggacaatgta aaatcatggc actttgatac    240
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50      tcaaactctt tccctgaata gtgactgtac acacgggtct atcctctgag acctgattag    360
        cccaataagc agctttcct gcagggttgg tacttccaaa ccctcctgtt ctttcctttt    420
        tgttttcccc aatttttaaca taaggcaaaa gcagtaattg agcaattcta tcacctggat    480
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        aaattacccc agtatgaatt tggactccct tcaaatttan acttgatctc cctcaaaggc    600
55      ctaccctccc ttctggcagc gggccatata ccctctang aatcttttgt ggggggcttc    660
        ccaggagtaa aaagaccatt tggggnggaa cataaatcta ctgcgggctg cctgctgggg    720
        cccgg                                                                725

            <210> 510
60          <211> 998
        <212> DNA
        <213> Homo sapiens
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/6 9

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        tgctaatggg attcaagcgc atccagaaag tagtactgga tctgatgccc gaactactgc      180
        tgaatcacag accactggga agcaaagttt aatccctaga actcctaaag ctagaaagag      240
        gaagagcaga actacaggct cactaccaaa ggggactgaa ccatctacgg atggagaaac      300
        ctctgaggca gagtcaaatt attctgtgtc tgagcaccat gataccattt taagggtaac      360
        taggagaagg cagatcttaa ttgcatgctc cccagtgtcc agtgttagga aaaagccgaa      420
        agtaactcca acaaaggagt cttacactga agaaatagtg tctgaagcag aatctcatgt      480
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        ggctaaatct ctgacagatc caagccaaga atctcataca gaagctatat ctgatgctga      600
        gacatcaagc tcagacattt cattctctgg aattgcaact agaagaacca ggagtatgca      660
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        acagatcgtg ggtacacctg tgaattcaga ggattcagat accagacaaa cttcccattt      780
        acaagcaaga tctctttctg agataaataa gccaaatttc tataataatg actttgatga      840
        tgatttctcc cacagaagtt cagaaaatat attaacagtg caccgaacag gccaatgttg      900
        aatctcttaa agaaacaaaa cagaattgta aggatttgga tgaagatgcc aatggaataa      960
        cagatgaggg gaaagaaatt aatgagaaaa gttcttca                             998


        <210> 511
        <211> 623
        <212> DNA
        <213> Homo sapiens


        <400> 511
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        caaaagagtt ttgctgctaa tgggattcaa gcgcatccag aaagtagtac tggatctgat      120
        gcccgaacta ctgctgaatc acagaccact gggaagcaaa gtttaatccc tagaactcct      180
        aaagctagaa agaggaagag cagaactaca ggctcactac caaaggggac tgaaccatct      240
        acggatggag aaacctctga ggcagagtca aattattctg tgtctgagca ccatgatacc      300
        attttaaggg taactaggag aaggcagatc ttaattgcat gctccccagt gtccagtgtt      360
        aggaaaaagc cgaaagtaac tccaacaaag gagtcttaca ctgaagaaat agtgtctgaa      420
        gcagaatctc atgtttcagg tatttctaga attgngcttc ctacagaaaa aactacagga      480
        gccagaagaa gtaaggntaa atctcttgac agatccaacc aagaatctca taccagaaac      540
        tatatctgat gctgagacat caaagctcaa acatttcatt tctcttggaa ttgccaccta      600
        gaagaaccaa ganttttgcc cga                                             623


        <210> 512
        <211> 655
        <212> DNA
        <213> Homo sapiens


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        tgctttttca gccatgatct ctgantactt ccttcggttg tatcttctga attcanaatc      180
        agccagcagt tcttccacaa tagttctttt cctttgcttc ttgggaatnc gtgaatggta      240
        naaatcagct ggattgtcaa caatggttcc aatctggaag tacttgggga agccatctct      300
        atcatttttc ttgnaaaatc ttttcgggtc catgctggct ctcatcttca ntgctttgan      360
        atcatttttc agttcatttg tcatttctgg agctttcata ccaaaccagc catcccctgn      420
        tggtttttgg cgntcttttc tgcgtttttt ctgaagttga tnctttgatt cactatatgg      480
        nggaacacag tggtttttt caaaatcagg tgtaatgacg gctttctgca naaactcatt      540
        tttctttttc nccttganct gngttanggt tctcttgtta aactgnaatt tatctgcntt      600
        aaaattaata tacaaaccac ccaactgntt gatccttaaa ccaagggcta tgctg          655


        <210> 513
        <211> 666
        <212> DNA
        <213> Homo sapiens


        <400> 513
        cgagccatga taccatttta agggtaacta ggagaaggca gatcttaatt gcatgctccc        60
        cagtgtccag tgttaggaaa aagccgaaag taactccaac aaaggagtct tacactgaag      120
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aaatagtgtc tgaagcagaa tctcatgttt caggtatttc tagaattgtg cttcctacag    180
aaaaaactac aggagccaga agaagtaagg ctaaatctct gacagatcca agccaagaat    240
ctcatacaga agctatatct gatgctgaga catcaagctc agacatttca ttctctggaa    300
ttgcaactag aagaaccagg agtatgcaga ggaaattaaa ggcacaaact gaaaagaaag    360·
atagtaagat tgtaccagga aatgagaaac agatcgtggg tacacctgtg aattcagagg    420
attcagatac cagacaaact tcccatttac aagcaagatc tctttctgag ataaataagc    480
caaatttcta taataatgac tttgatgatg atttctccca cagaagttca gaaaatatat    540
taacagtgca ccgaacaggc caatgttgaa tctcttaaag aaacaaaaca gaattgtaag    600
gatttggatg aagatgccaa tggaataaca gatgagggga aagaaattaa tgagaaaagt    660
tcttca                                                               666
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        <210> 514
        <211> 699
        <212> DNA
        <213> Homo sapiens

        <400> 514
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ggaagaggga agtcgtggtg gtcgcgaggg agccggaaag atggtggtta ccagatctgc     60
acgggctaag gccagcatcc aagccgcgtc ggctgaaagt tccggcaaa agagtttgc     120
tgctaatggg attcaagcgc atccagaaag tagtactgga tctgatgccc gaactactgc    180
tgaatcacag accactggga agcaaagttt aatccctaga actcctaaag ctagaaagag    240
gaagagcaga actacaggct cactaccaaa ggggactgaa ccatctacgg atggagaaac    300
ctctgaggca gagtcaaatt attctgtgtc tgagcaccat gataccattt taagggtaac    360
taggagaagg cagatcttaa ttgcatgctc cccagtgtcc agngttagga aaaagccgaa    420
agtaactcca acaaaggagt cttacactga agaaatantg tctgaagcaa aanctcatgt    480
ttcangtatt tctagaattg ngcttcctac anaaaaaact acaggagcca gancaagtaa    540
ggctaaatct ctgacanatc caagccaaga atctcataca gaagctatat ctgatgcttg    600
aacatcaagc tcagacattt nattctctgg aattgcaact agaanaacca ggaattntgc    660
ngagggaaat ttaagggccc caactggaaa agaaaggat                          699
```

        <210> 515
        <211> 759
        <212> DNA
        <213> Homo sapiens

        <400> 515
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agttttccaa acgtctttaa taagtaaata aaggagcaat gtaaatgtt gcagtttgct     60
tggtaaatct taattgcgaa atttcttctt ctttcggaac tttttttcctg ctgcatttgc    120
tgcttttca gccatgatct ctgagtactt ccttcggttg tatcttctga attcagaatc    180
agccagcagt tcttccacaa tagttctttt cctttgcttc ttgggaattc gtgaatggta    .240
gaaatcagct ggattgncaa caatggttcc aatctggaag tacttgggga agccatctct    300
atcatttttc ttgnaaaatc tttttcgggtc catgctggct ctcatcttca gtgctttgag    360
atcatttttc agttcatttg tcatttctgg agctttcata ccaaaccagc catcccctgc    420
tgttttttgt cgttcttttc tgcgtttttt ctgaagttga tctttgattc actatatggn    480
ggaacacagt ggttttttc aaaatcangn gtaatggacn gctttctgca naagcccatt    540
tttcttttc tccntggatc tgggntaang ggtcctcttg ntagaactgg gagtttatct    600
nccttaaaaa ttaatataca aaccnccca ctgnttgntn nctcaaaaac nagggnctat    660
tcctgttgct tgtcnacctt caaaaagttt aaccccttg ngcctnttta aggaaagcnt    720
ttttattact aaactcanct ttnattttcn gcatggggc                          759
```

        <210> 516
        <211> 1072
        <212> DNA
        <213> Homo sapiens

        <400> 516
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gtgacgacat agaacaggag accttttatgc ttgatgagcc attagaaaga accacaaata     60
gctcccatgc caatggtgct gcccaagctc cccgttcaat gcagtgggct gtccgcaaca    120
cccagcatca gcgagcagcc agtacagccc cttccagtac atctacacca gcagcaagtt    180
cagcgggttt gatttatatt gatccttcaa acttacgccg gagtggtacc atcagtacaa    240
gtgctgcagc tgcagcagct gctttggaag ctagcaacgc cagcagttac ctaacatctg    300
caagcagttt agccagggct tacagcattg tcattagaca aatctcggac ttgatgggcc    360
ttattcctaa gtataatcac ctagtatact ctcagattcc agcagctgtg aaattgctta    420
```
                              /7/

```
        ccaagatgca gtaaacttac agaactatgt agaagaaaag ctcattccca cttggaactg       480
        gatggtcagt attatggatt ctactgaagc tcaattacgt tatggttctg cattagcatc       540
        tgctggtgat cctggacatc caaatcatcc tcttcacgct tctcagaatt cagcgagaag       600
        agagaggatg actgcgcgag aagaagctag cttacgaaca cttgaaggca gacgacgtgc       660
5       caccttgctt agcgcccgtc aaggaatgat gtctgcacga ggagacttcc taaattatgc       720
        tctgctctaa tgcggctcat aatgatgagc attctgatgt tcttccagtt ttggatgttt       780
        gctcattgaa gcatgtggca tatgtttttc aaagcactta tatactggat taaggnaatg       840
        aatcagcaga cacatttgga tcnccctcaa ctagaacccn aaaggacgcg agaactcttg       900
        ggactgggtt ttgntatgaa attcanaaca tgaaatgatg atgacaccat caaangcttc       960
10      tttgatgata agntgatgac tctttctgcg aactggccaa acnatcattt ttccacgtca      1020
        actcntgcat ccttggnggg ttcccccaat cncttgaagg ccctggtgaa ac             1072
```

        <210> 517
        <211> 767
15   <212> DNA
        <213> Homo sapiens

        <400> 517
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        gtttagccag ggcttacagc attgtcatta gacaaatctc ggacttgatg ggccttattc        60
20      ctaagtataa tcacctagta tactctcaga ttccagcagc tgtgaaattg acttaccaag       120
        atgcagtaaa cttacagaac tatgtagaag aaaagctcat tcccacttgg aactggatgg       180
        tcagtattat ggattctact gaagctcaat tacgttatgg ttctgcatta gcatctgctg       240
        gtgatcctgg acatccaaat catcctcttc acgcttctca gaattcagcg agaagagaga       300
        ggatgactgc gcgagaagaa gctagcttac gaacacttga aggcagacga cgtgccacct       360
25      tgcttagcgc ccgtcaagga atgatgtctg cacgaggaga cttcctaaat tatgctctgc       420
        tctaatgcgg ctcataatga tgagcattct gatgttcttc agttttgga tgtttgctca       480
        ttgaagcatg tggcatatgt ttttcaaagc acttatatac tggattaagg naatgaatca       540
        gcagacacat ttggatcncc ctcaactaga acccnaaagg acgcgagaac tcttgggact       600
        gggtttttgnt atgaaattca naacatgaaa tgatgatgac accatcaaan gcttctttga       660
30      tgataagntg atgactcttt ctgcgaactg gccaaacnat catttttcca cgtcaactcn       720
        tgcattcctt ggnggttccc ccaatcnctt gaaggccctg gtgaaac                    767
```

        <210> 518
        <211> 765
35   <212> DNA
        <213> Homo sapiens

        <400> 518
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        attttacatg tctttatttt acatttagaa ccgtttttatg atttacttaa aaaaaaaatc        60
40      ttttactatt attagaagta ttttttaacc aaaatcttga tttaggaaga cttaagacat       120
        tgtgcattat tttaaatatt ttcatttcag taactattaa aaataaattc acaattaggg       180
        tttcaaatgt cctaatcata tctagtttgt tctcatttaa tattttatca atcccatcat       240
        gtgcatacag aggttaaggn gatgtataaa ttttatatct ttcaaacaca ttgatgctaa       300
        tcagctcttg atctaattac tatttcattt attcagaaat agcatttaga cataaaaacc       360
45      aatgtctcac tttgtaaaat aacctttggc taatttacac acatctaata cagcgtgtta       420
        tataagtttt aagtaataca atgagtcact actatcattc agttttaaat atttttagtg       480
        ttaacagggc tgagaatatc atgtggttca gtcttctgaa ggaagttata taataaaagc       540
        atagtgcctt tgaacatgaa gactatcctc aaggccagaa atcctacaaa gggaactgaa       600
        aggagagatt ncagagaatt gctctcctca tttttaatat gtaaagggac tggtttaagt       660
50      cacttcattg gaagacttta aggaaanaaa acaggggtat tttgcccctg ataaagcta       720
        ccttaaaccc aaaggaattt tnggggatat taatccctag cttc                       765
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        <210> 519
        <211> 571
55   <212> DNA
        <213> Homo sapiens

        <400> 519
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        gtgacgacat agaacaggag acctttatgc ttgatgagcc attagaaaga accacaaata        60
60      gctcccatgc caatggtgct gcccaagctc cccgttcaat gcagtgggct gtccgcaaca       120
        cccagcatca gcgagcagcc agtacagccc cttccagtac atctacacca gcagcaagtt       180
        cagcgggttt gatttatatt gatccttcaa acttacgccg gagtggtacc atcagtacaa       240
        gtgctgcagc tgcagcagct gctttggaag ctagcaacgc cagcagttac ctaacatctg       300
```
                                    17&
```

```
        caagcagttt agccagggct tacagcattg tcattagaca aatctcggac ttgatgggcc    360
        ttattcctaa gtataatcac ctagtatact ctcagattcc agcagctgtg aaaattgctta   420
        ccaagatgca gtaaacttac agaactatgt agaaaaaaag cttattccct tggaactgga    480
5       tgggcagnat tatggattct ctgaagcnca antccctatg ggtctgcatt tcanctgntg    540
        gggaancngg aattcaaana ttctctttcg c                                    571


        <210> 520
        <211> 681
        <212> DNA
10      <213> Homo sapiens


        <400> 520
        catacttaat tttttatttt gaaattccct attccctcta tacaagaacc tttgctgaaa    60
        cagtttccac aaaggcagca gtgaattttc agaacattta catttttttcc ccctcagcaa    120
15      aaagataaat cacagtgtaa attatgttgt tctgctgtca tctttggctg gggttagacc    180
        canaagttgg tgactagcaa accaatatag ccaaatgttg ctagtgctcc ttaggccttt    240
        aagctataaa ctcagcaagg aatgtctgca ttttatctct ttaaggtacc accagggggg    300
        tatgacagca ttaacttcca taaacttta tagacaaatg gaaaaaaatc tacaaaattt     360
        gctagtaata ttacacagca atacacactt tttatactct acacaaaacc aaaattcttg    420
20      gtcttaatgg cgagtaacaa tttctgtttg agaatctgtt tagaggaata gagtgggacg    480
        taaagtcgag aaatgcaagt atttgcagta ggaagatgtt ggtcatctgg tggtcttatt    540
        gtgattgagg gcataggctg gaatccttct tcactggctg gcaatgatgg gcttgatgtc    600
        caaaagtaaa caagatcttg ncggtctgnc atgctcatct tctctactat tgaccanaac    660
        caacgcttga actggaaaaa c                                               681
25
        <210> 521
        <211> 1890
        <212> DNA
        <213> Homo sapiens
30
        <400> 521
        gcgggttcca gttgtgattg ctggagttgt gtattgccag gaggctctcc gagattgggg    60
        tcgggtcact gcctcatcca ccggagcgat ggcgtttctc cgaagcatgt ggggcgtgct    120
        gagtgccctg ggaaggtctg gagcagagct gtgcaccggc tgtggaagtc gactgcgctc    180
35      ccccttcagt tttgtgtatt taccgaggtg gttttcatct gtcttggcaa gttgtccaaa    240
        gaaacctgta agttcttacc ttcgattttc taaagaacaa ctaccatat ttaaagctca      300
        gaacccagat gcaaaaacta cagaactaat tagaagaatt gcccagcgtt ggagggaact    360
        tcctgattca aagaaaaaaa tatatcaaga tgcttatagg gcggagtggc aggtatataa    420
        agaagagata agcagattta aagaacagct aactccaagt cagattatgt ctttggaaaa    480
40      agaaatcatg gacaaacatt taaaaaggaa agctatgaca aaaaaaaaag agttaacact    540
        gcttggaaaa ccaaaaagac ctcgttcagc ttataaccgt ttatgtagct gaaagattcc    600
        aagaagctaa gggtgattca cccgcaggaa aagctgaaga ctgtaaagga aaactggaaa    660
        aatctgtctg actctgaaaa ggaattatat attcagcatg ctaaagagga cgaaactcgt    720
        tatcataatg aaatgaagtc ttgggaagaa caaatgattg aagttggacg aaaggatctt    780
45      ctacgtcgca caataaagaa acaacgaaaa tatggtgctg aggagtgtta aaagtagaag    840
        attgagatgt gttcacaatg gataggcaca ggaaaccagt taggtctcaa tacctgaagc    900
        tatcgtaaaa ttaagaaagg ataaagttgg taaacctttt atatttagta tcttttttatt  960
        cagctcatgg acttctgcca gcataatact tgctttggaa aacccagata aaggttcatg    1020
        caaactttat tttgtgttta ggaactactg aggatcagag taatccaagc aaatgtgaat   1080
50      cattttacct ttgacaaagg taaatcagac tatgaagttt tttttataca ggatgatgac   1140
        tatggaaaga gtactcttgt ttccttatat tatggaggca ggagtttcgt tttcaaaatt    1200
        gttcaaattg tagaaaccac ggggtctgtg atataagtgt gtgttttca taaagcaggc     1260
        agaactcatt taggtaaatt ncagttcnta ggtataattc acattgtatt cagagttgat   1320
        ggttgacata taagtgattg ctggttttag ttgcaacttt gtataaaagg gactgagaaa   1380
55      tttataaact tttttcttac tgtctttttt ctaaagtaaa aacaaagaaa ttatgtgcca   1440
        gattatgca tattatttta tgttgcatag aataaaattt ttaatcttta attttacatt     1500
        tcctaaatat attttaagnc gaaacatttg ttctatagct tttccctttt tttaagtaag    1560
        gaattttatt tttttctgaa ttattttctc tcgtgagtat attgatccag aaagaaaact   1620
        tgtattatgt gtgtttttaaa atgagaaatn taaaaaacga aaagtctcca aagtctctgg  1680
60      aatttgaaac ncttttgcata acgtataaaa gcctgtttaa gagacagcca actatggcct   1740
        gtggatcaaa tccagcctgc tgcctgcttt ttatggcctg tgagctagga attgtgttta    1800
        taattttaaa tgttttttttt taaagacttt tatgatactt gaaaattaac atgaatattt   1860
        agtgttcata aataaagttt gttgaaaccc                                     1890
```

175

<210> 522
<211> 763
<212> DNA
<213> Homo sapiens

<400> 522
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ctggaaaaat ctgtctgact ctgaaaagga attatatatt cagcatgcta aagaggacga      60
aactcgttat cataatgaaa tgaagtcttg ggaagaacaa atgattgaag ttggacgaaa     120
ggatcttcta cgtcgcacaa taaagaaaca acgaaaatat ggtgctgagg agtgttaaaa     180
gtagaagatt gagatgtgtt cacaatggat aggcacagga aaccagttag gtctcaatac     240
ctgaagctat cgtaaaatta agaaaggata aagttggtaa accttttata tttagtatct     300
ttttattcag ctcatggact tctgccagca taatacttgc tttggaaaac ccagataaag     360
gttcatgcaa actttatttt gtgtttagga actactgagg atcagagtaa tccaagcaaa     420
tgtgaatcat tttacctttg acaaaggtaa atcagactat gaagtttttt ttatacagga     480
tgatgactat ggaaagagta ctcttgtttc cttatattat ggaggcagga gtttcgtttt     540
caaaattgtt caaattgtag aaaccacggg gtctgtgata taagtggngg ttttcataaa     600
gcangcagaa ctcatctagg taattacagg tnctaggata attcacattg tttcaaaggt     660
gatgggtgnn atataatgat tgntggttta gtgcactttg tttaaangga ctgaaaaata     720
taacctttct tangcttttc taaagaaaac aaaaaaattg tgc                       763
```

<210> 523
<211> 714
<212> DNA
<213> Homo sapiens

<400> 523
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gggtttcaac aaactttatt tatgaacact aaatattcat gttaattttc aagtatcata      60
aaagtcttta aaaaaaaaca tttaaaatta taaacacaat tcctagctca caggccataa     120
aaagcaggca gcaggctgga tttgatccac aggccatagt tggctgtctc ttaaacaggc     180
ttttatacgt tatgcaaagt gtttcaaatt ccagagactt tggagacttt tcgttttta     240
gatttctcat tttaaaacac acataataca agtttctttt ctggatcaat atactcacga     300
gagaaaataa ttcagaaaaa aataaaaattc cttacttaaa aaaagggaaa agctatagaa     360
caaatgtttc gtcttaaaat atatttagga aatgtaaaat taaagattaa aaattttatt     420
ctatgcaaca taaaataata tgcataaatc tggcacataa tttcttgtt tttactttag     480
aaaaaagaca gtaagaaaaa agtttataaa tttctcagtc cctttttatac aaagttgcaa     540
ctaaaaccag caatcactta tatgtncacc atcaactctg aatacaatgt gaattatacc     600
taaggaactg taatttacct agatgagttc tgnctgcttt atgaaaaaca cacacttatn     660
tcacaaaaca ccgnggcttt ctcnatttgn aacaaatttt gnaaaaccaa aact           714
```

<210> 524
<211> 784
<212> DNA
<213> Homo sapiens

<400> 524
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gcgggttcca gttgtgattg ctggagttgt gtattgccag gaggctctcc gagattgggg      60
tcgggtcact gcctcatcca ccggagcgat ggcgtttctc cgaagcatgt ggggcgtgct     120
gagtgccctg ggaaggtctg gagcagagct gtgcaccggc tgtggaagtc gactgcgctc     180
cccttcagt tttgtgtatt taccgaggtg gttttcatct gtcttggcaa gttgtccaaa     240
gaaacctgta agttcttacc ttcgattttc taaagaacaa ctacccatat ttaaagctca     300
gaacccagat gcaaaaacta cagaactaat tagaagaatt gcccagcgtt ggagggaact     360
tcctgattca aagaaaaaaa tatatcaaga tgcttatagg gcggagtggc aggtatataa     420
agaagagata agcagattta aagaacagct aactccaagt cagattatgt ctttggaaaa     480
agaaatcatg gacaaacatt taaaaaggaa agctatgaca aaaaaaaaag agttaacact     540
gcttggaaaa ccaaaaagac ctcgttcagc ttataaccgt ttatgtagct gaaagattcc     600
aagaagctaa gggtgattca cccgcaggaa aagctgaaga ctgtaaagga aaactggaaa     660
aatctgtctg actttgaaaa ngaattatnt attcancatg ctnaaagagg acgaaactcg     720
ttntcataat gaaatgaagt ctttggaaag aacaaatgat tgaaatttgg accaaaagga     780
tctt                                                                   784
```

<210> 525
<211> 658

177

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        <212> DNA
        <213> Homo sapiens

        <400> 525
 5      gggtttcaac aaactttatt tatgaacact aaatattcat gttaattttc aagtatcata        60
        aaagtcttta aaaaaaaaca tttaaaatta taaacacaat tcctagctca caggccataa       120
        aaagcaggca gcaggctgga tttgatccac aggccatagt tggctgtctc ttaaacaggc       180
        ttttatacgt tatgcaaagn gtttcaaatt ccagagactt tggagacttt tcgttttta        240
        natttctcat tttaaaacac acataataca agttttcttt ctggatcaat atactcacga       300
10      gagaaaataa ttcagaaaaa aataaaattc cttacttaaa aaaagggaaa agctatagaa       360
        caaatgtttc gncttaaaat atatttagga aatgtaaaat taaagattaa aaatttatt        420
        ctatgcaaca taaataata tgcataaatc tggcacataa tttctttgtt tttactttag        480
        aaaaaagaca gtaagaaaaa agtttataaa tttctcagtc cctttctatac aaagttgcaa      540
        ctaaaaccag caatcactta tatgtcaacc atcaactctg aatacaatgt gaattatacc       600
15      tangaactgn aatttaccta aatgagttct gcctgcttta tgaaaaacac acacttat        658


        <210> 526
        <211> 725
        <212> DNA
20      <213> Homo sapiens


        <400> 526
        ggagcgcgca cagtcggctc gcagcgcggc actacagcgg ccccggcccg gcccccgccc        60
        ggccccggcg caggcagttc agattaaaga agctaattga tcaagaaatc aagtctcagg       120
25      aggagaagga gcaagaaaag gagaaaaggg tcaccaccct gaaagaggag ctgaccaagc       180
        tgaagtcttt tgctttgatg gtggtggatg aacagcaaag gctgacggca cagctcaccc       240
        ttcaaagaca gaaaatccaa gagctgacca caaatgcaaa ggaaacacat accaaactag       300
        cccttgctga agccagagtt caggaggaag agcagaaggc aaccagacta gagaaggaac       360
        tgcaaacgca gaccacaaag tttcaccaag accaagacac aattatggcg aagctcacca       420
30      atgaggacag tcaaaatcgc cagcttcaac aaaagctggc agcactcagc cggcagattg       480
        atgagttaga agagacaaac aggtctttac gaaaagcaga gaggagctg caagatataa        540
        aagaaaaaat cagtaaggga gaatatggaa acgctggtat catggctgaa gtggaagagc       600
        tcangaaacg tgtgctagat atggaaggga aagatgaaga gctcataaaa atggagggag       660
        cagtgcagag atctcaataa gangctttga aagggagacg tttcaaatta agactttaa        720
35      ctaga                                                                  725


        <210> 527
        <211> 764
        <212> DNA
40      <213> Homo sapiens


        <400> 527
        aaaaataaca aattatttac tgttttataa tgttaaagta tttcaccaan acaagttgca        60
        gtcaaattaa agtgagttat ggaaaatgaa atacataaag atgtntttat acaagngcan       120
45      actaaatntt ttccatacaa gtntgtaaat gaaaanatnt acagtaagng cncactcgat       180
        ntgactntgc aggcaacagt tagtttcaaa tactcttgtn tagttcatgc ncaaaccttc       240
        ccaaagtacg agttcagtca gtcttggggg atntggaggg atgattaaaa aaggattgag       300
        ttccttgcaa aaatatcagt ntggactgga tgagggtgag ccgtggtcag ttatatatat       360
        tacttactgt aatttgtgat tgcaaggaaa aggtgtggct gttggtgtga tagtaatact       420
50      gctggngact ttattggttg ntttgtttag ggccccgtta attaagcctt gagttcggtt       480
        atcctgcant ggtgctgaag ggctggcagg tctcacaggg ctggcttcag ctttgcatgt       540
        aaggacttcc taagggaatg nggattttat tatnctcagt agttatcaca cttgagcttt       600
        gntggttgaa ccctnaactg ccatgatgac tggccggtct ggggganacct tnaatatcca       660
        tgcttggcac tggatttntg ntgggtntng gggagcggnc ctgttcagga nancttctga       720
55      ccanccagcc aaacctggaa tggggnattg nccttttgga gtaa                       764


        <210> 528
        <211> 767
        <212> DNA
60      <213> Homo sapiens


        <400> 528
        agagcaggaa aatggactca ttagggaggc aggcagtcat taccactcac actgtacttc        60
```

175

```
        caggggagaca ccgattataa gaagagaaac tcagcgctgg ggaagaaggc actgccagga       120
        cttaccgtac aacactcctt ggcttctgga attttatctc tgctcacagt ctacattaca       180
        acattagttc attctgggca ctttagcttc cttgaatctc cagttgatct cacacccatg       240
        cctatgatat tcttctcctg gttaatcaag aattctctat ttctgctccg tcatccatgc       300
    5   cactacaaat aaaaagaagt gttaagaatt gcctttggga ctctgaaggc tgaagaattg       360
        atgaattgca agtttgtgcc ccatagctgc acagactgcc tgaagttaca tttagagact       420
        gaaatcactg caccttaaaa acaaaagatt gagctgcact gtattcctaa tgtttcatca       480
        ttactaacag gatattcctc atgacattgc tgtctgatct ttgaccatca gtctgtgacc       540
        tgcccccttct ctttacatgc agccgctctc tgctccctgc cccaatgaac atctgcacta       600
   10   ggcccaagcc ttggagtaat ttacctgaag agtgacacca ttgatttttg aaactactgg       660
        agaaacccaa gacagctgaa aaccagaagg cttntgagga ggaatgagat tactcaaccc       720
        ggtgggatcc agcgcccaag cccgggcttt ccctgcctga acctttg                     767


            <210> 529
   15       <211> 681
            <212> DNA
            <213> Homo sapiens


            <400> 529
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        atccaaccag tggacctctt gaagcactac caggccttaa ggccaccatc cgagggagac       120
        tgggaaaact attattcacc caagcctccg gaaatgtaat gtaccagcag gcaaaaaaca       180
        gttcttcatg tagtacaaaa tgaaacgaaa caaaaacaaa aacagaaagt aaaaatgaaa       240
        ccaaaacatt tcttaaattc tagtgccata gctttttttgt ttgttgtt tttgttgttg       300
   25   ttttgttttg ttcataagaa agagagaaag atactactta tccgtcagac acatgcatcc       360
        tcatgtggtc gttgaactgc tcgatttggt caaactttgc tgggcagacg gagcagacgt       420
        aagtggtccc ctccgtgcag gccaccacgc ctggggggcc agcgcgggca cctggggggtg       480
        tgcctgcagg ggggtccat tgctggcact gtgcagggcc acgtgtcgct ccaagagggt       540
        cttgtgagan aacttntttt tgcagatgta gcacntcgaa gacttttttt ccccgnggga       600
   30   ngcgcatgtc acnttgaagg gagctntttt tgggtgaaac acttgttgna aatactacct       660
        gggatgccct cacttctgtg t                                                 681


            <210> 530
            <211> 812
   35       <212> DNA
            <213> Homo sapiens


            <400> 530
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        atctcattat agataactgc atgaagtaca atgccaggga caccgtgttc tatagagccg       180
        cggtgaggct gcgcgatcag ggaggtgttg ttctgaggca ggcccggcgc gaggtggaca       240
        gcatcggctt ggaagaggcc tcggggatgc acctgcctga gcggcctgct gcggcaccgc       300
        ggcggccttt ctcctgggaa gacgtggaca ggttgctgga ccccgccaac agagcccacc       360
   45   tgggcctgga ggagcagctg agagagctgc tggacatgct cgacctcacc tgcgctatga       420
        agtccagcgg ctcccggagc aagcgggcaa agctgctcaa aaaggaaatt gcccttctcc       480
        gaaacaagct gagccagcag cacagccagc ccctgcccac ggggccaggc ttggaaggct       540
        tcgaagagga cggagctgcg ctgggggccg gaggcgggcg aagaagtcct tccgaggttg       600
        gagactcttc tgcagccaag gaaaaggtcg cggagcacat gcggagactt ncgangtgga       660
   50   ggaggagtnc ccangaaaag cgcctggacg caggtcttca ccaacngctt ttggggtgcn       720
        aagagccaac cangaacccg gccggggggcc ttgggggagg aaggccacac cccgacgacc       780
        ttgggccttc gagttcaaga ttttctttca ag                                     812


            <210> 531
   55       <211> 781
            <212> DNA
            <213> Homo sapiens


            <400> 531
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        ataatgcttt acctcttaaa aataaaaata aagtactaat tctatataca tcacaggtac       120
        catacaaaaa tgtatccaaa gtttctattg ctaccaaagt gttctaaatt aaaacaagtt       180
        acagaaagcc cctcattgta aacaaagat tacaagttat aaaatcaaag tacacacagg       240
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         ccagagtcat ttatacaatg caatgcattc tgctcccaag ccaagttgaa tttttatgtg      300
         cctgtataaa aatgcatatc aatatacctt tgcaaatgta ttttttcatta taaagcaaat      360
         gaatacactt tctacaataa ataatccgct gggaggcaca cctgcggggt ttgaggtggg      420
         cgggacgacg ggagcgggga cacacccacc ggcggtcacg ggcagcggag tgtttttggt      480
    5    gatctgcaag tgatgtcaca gcataacttt attctcccct ctttccacaa agtaccattc      540
         aaaataatgn cattttcttt cttaaaatac acatttgtca ttgtaaattt acatcccgtc      600
         ttattaaata agtggtactc tgngtaaaga gcatgattta caaaattatt aaacattcaa      660
         aagtctttaa gaaaaagcta catatcaaan aaagtgacgc cngcacaccg gncttggggg      720
         acgtgcgana anacncactg ggcttgcccg gacgtgcccc cccctttac agggccaaaa      780
   10    c                                                                      781


              <210> 532
              <211> 708
              <212> DNA
   15         <213> Homo sapiens


              <400> 532
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         tgtggacaac agtgagtata tgcggaatgg agacttctta cccaccaggc tgcaggccca      120
   20    gcaggatgct gtcaacatag tttgtcattc aaagacccgc agcaaccctg agaacaacgt      180
         gggccttatc acactggcta atgactgtga agtgctgacc acactcaccc cagacactgg      240
         ccgtatcctg tccaagctac atactgtcca acccaagggc aagatcacct tctgcacggg      300
         catccgcgtg gcccatctgg ctctgaagca ccgacaaggc aagaatcaca agatgcgcat      360
         cattgccttt gtgggaagcc cagtggagga caatgagaag gatctggtga aactggctaa      420
   25    acgcctcaag aaggagaaag taaatgttga cattatcaat tttggggaag aggaggtgaa      480
         cacagaaaag ctgacagcct ttgtaaacac gttgaatggc aaagatggaa ccggttctta      540
         tctggtgaca gtgccttctg ggcccagttt ggctgatgct ctcatcagtt cttcnatttt      600
         ggctggtgaa ngnggtgccc ttgctgggtc ttgggtgcca gtgactttg aattttggag      660
         tanaatccca ntgcttgatc cttgagcttg ggccttggcc ccttctgt               708

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              <210> 533
              <211> 692
              <212> DNA
              <213> Homo sapiens
   35
              <400> 533
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         aacagaacac agccaaagta aactgtgtag gggagccaca tttacatagg aaccaaatca      120
         atgaatttag gggttacgat tatagcaatt taagggccca ccagaagcag gcctcgagga      180
   40    gtcaatttgc ctctgtgtgc ctcagtggag acaagtggga aaacatggtc ccacctgtgc      240
         gagaccccct gtcctgtgct gctcactcaa caacatcttt gtgttgcttt caccaggctg      300
         agaccctacc ctatggggta tatgggcttt tacctgtgca ccagtgtgac aggaaagatt      360
         catgtcacta ctgtccgtgg ctacaattca aaggtatcca atgtcgctgt aaatttttatg      420
         gcactatttt tattggagga tttggtcaga atgcagttgt tgtacaactc ataaatacta      480
   45    actgctgatt ttgacacatg tgtgcttcaa atgatctggt ggttatttaa cgtacctctt      540
         aaaattngtt gaaacgattt caggtcaact ctgaagagta ttttgaaagc angactttan      600
         aacagtgttt gattttttatt ttataaattt aagcatttca aattaggcaa atctttggct      660
         gcaggcagca aaaacaggc ttggacttat tt                                     692


   50         <210> 534
              <211> 546
              <212> DNA
              <213> Homo sapiens

   55         <400> 534
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         ctctctgccc aggatggagc gcagtagtgc aatctcagct cactgcaacc tccgcctccc      120
         gggttcaagc aattcttctg cctcancctc caagtagctg tggcaggaga atggcgtgaa      180
         cctgggaggc agagtttgca gtgagccgag attgcgccac tgcactccag cctgagtgac      240
   60    agagcgagat tccgtgaaca agtaattctt cacactgnna ttttatgtct gtnngcttaa      300
         ngaagaaatc atgaattttt cttctaaana angtattctg ttgacaccan nctattggaa      360
         anattttcaa cntaaggnga tgctangact ggcctccnan cnnnnaattg ngaagnaaag      420
         ancatgnnnt ggncggntcc tccaaanaan aaattnncta cccgnnngnc cntanngaaa      480
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/77

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tttccacncn ccgccttctt cttttncnta cacaccnaaa tcncgntnnc naanangnna    540
nacgga                                                              546
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```
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        <211> 784
        <212> DNA
        <213> Homo sapiens


        <400> 535
gccccaagga agaggacatg gaggtggaca tacctgctgt gaaagtgaaa gaggagccac    60
gagatgagga ggaagaggcc aagatgaagg ctcctcccaa agcagccagg aagactccag   120
gcctcccgaa ggatgtatct gtggcagagc tgctgaggga gctgagcctc accaaggaag   180
aggaactgct gtttctgcag ctgccagaca ccctccctgg ccagccaccc acccaggaca   240
tcaagcctat caagacagag gtgcagggcg aggacggaca ggtggtgctc atcaagcagg   300
agaaagaccg agaagccaaa ttggcagaga atgcttgtac cctggctgac ctgacagagg   360
gtcaggttgg caagctactc atccgcaagt ctggaagggt gcaactcctc ttgggcaagg   420
tgactctgga cgtgaccatg ggaactgcct gctccttcct gcaggagctg gtgtccgtgg   480
gccttggaga cagtaggaca ggggagatga cagtcctggg acacgtgaag cacaaacttg   540
tatgttcccc tgattttgaa tccctcttgg atcacaaaca ccggtaaaat gaacaagtgg   600
aggaagacng cgcctgtgcc ccaccgnttg ctgccttgct ncanacattt ttgttcttgg   660
aatctgtgan aanccaaaaa ggggncccct tgagccccac ttcactttca gncttttggg   720
naaccantgg ttncangtnc ccccaagggc tttccttccc caacaacntg tggaattggg   780
acaa                                                               784
```

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        <211> 735
        <212> DNA
        <213> Homo sapiens


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atctataaga gcccatgaat cctcacgcca accctggagg taggtatcat ccccatttgt   120
gtcggatgag gtataggagg ctcanaaagg ttaggtagtt tgtccaagga cacagaacca   180
ggaactggca agctgggacc gagtgcttaa gtctcagact caatccttgc tctctctcct   240
atactgcctc caggaggacg gggggagcac cagcagaagc tgcagtccac acgcttcctg   300
cccctgcaac ccagcaggca ccaagagaag ccagcccctt cacacagacc ctccccatct   360
acccttggag gatgcatcaa gtggaagaga ttaagacata aatacaaaaa taaatagcag   420
ggccaagtcc ccagcagcaa ggatgtgcca tctccacgct gcaggaaggt cactgtgcca   480
ttcacagctg ctgtgggagg aaaccctggg ggacctggaa caatggttgc caaaggctgg   540
aatgagtggg ctcaaatggg gcccttctg gggctncaaa attcaagaac aaaatgtntt    600
ggacaaggca ncaacccggg ggcccaaggc gcccnncttc cttcacctgn ttatttttac   660
cggnggtttg ggatcccaan agggattnaa aaatcaaggg gaanatacaa ntttgtggct   720
tacgttttcc caaga                                                    735
```

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        <211> 601
        <212> DNA
        <213> Homo sapiens


        <400> 537
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agtggtttga agagccaggg ccgtctgtca gtaggaagta atcgtgatcc gagagatcaa   120
gcatgtctgt tggtctggga agatcacaat tagattctaa aggaggagta gttggaggga   180
ccatagatgt caatgctttg gagatggntg ctcatatttc tgaacatcca aatcagcaac   240
ccantcacaa aattcagatt actatgggtt ctactgaagc tcgtgttgat tacatgggct   300
caagtatcct catgggcatc ttcagtaatg ctgatcttaa gcttcaggat gaatggaaag   360
taaacttgta taatacattg gattcaagca taactgataa aagtgagatt ttcgtccntt   420
ggagatttga angtgggata tttttccaan ntaatnatnt tnaaggncaa ccacaccnga   480
tctggtaaaa aataggaatg aagcnccang aatttttca cacaacaatt tgatccagca   540
aacnanctct gtcttcctgg gggaccagtt ccttaacctt cccccaaaga acaatgactt   600
t                                                                  601
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        <210> 538
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178

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        <211> 673
        <212> DNA
        <213> Homo sapiens

        <400> 538
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        cacaattact caagctatat acaaacaggt atttatataa gtctacattt aaaaaagaaa     120
        aagcaattaa tgacctcccc aaaatcacat tatcatcaac aagatttttt tctaaaagtt     180
        acggccaatc caataacaaa aaaattcaca gttattctgc agacatttta aagatgcagg     240
        aattgtattg cacattatat aattataaac cataacaagc agttatatat tttaatctag     300
        ttttcacaa aatttacatt atcatgcaat acttcactgt acacagaatg atggaactag     360
        aacaggttaa cttacaaact tttaattata gccacaaatt tagaattatt ttaaagttat     420
        atttcaaatt attatactaa aaaaacactc cagtgtaata aaacagacac aatcataatt     480
        tgttcacaga tcaaattact tttttagngt tcttctttgn ctttgccttt cttttccttt     540
        tcatcctgna gtgcagtacc gagctttttg atnagaactg acagaacctt gtncagtgga     600
        tccatgactc ctctttggaa gccatttang aatagnaggc ctagcatgga tgaaagccca     660
        attttggagg aat                                                       673

        <210> 539
        <211> 691
        <212> DNA
        <213> Homo sapiens

        <400> 539
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        acaagccaag cagaatgcca actcccagct gtccatcttg ttcattgaaa aacctcaagg     120
        aggaacagtg aaagttggtg aagatatcac cttcatagcc aaagtcaagg ctgaagatct     180
        tctgagaaaa cccactatca aatggttcaa aggaaaatgg atggacctgg ccagcaaagc     240
        cgggaagcac cttcagctga aggaaacctt tgagaggcac agtcgggtgt acacatttga     300
        gatgcagatc atcaaggcca aagataactt tgcaggaaat tacagatgcg aggtcaccta     360
        taaggataag tttgacagct gttcatttga tcttgaagtg cacgaatcta ctgggactac     420
        tccaaacatt gacatcagat ctgctttcaa gagaagggag gtgaagcagc aggaggaaga     480
        accccaggtg gacgtatggg agttgctgaa gaacgcgaaa cccagtgagt acgaaaagat     540
        cgccttncag tatggaatca ccgatctgcg ccgnatgctc aaacgactca agcgcatgcc     600
        gcagaganga gaaaaaagac cgcacttttg ccaaaaaatt cttggatcct gcctatcagg     660
        ttgacnaaaa ggangcacaa tgagggttgt t                                   691

        <210> 540
        <211> 667
        <212> DNA
        <213> Homo sapiens

        <400> 540
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        aatgcttttt ctcatttcaa ccagatttca aagcagcaga gtgcagagag acagtagcca     120
        ggccctccct cagtattcct caggattgct tgagtgtaag tctcgcanat atgaatcaat     180
        tatgtttgga ggtacncctt gcaagaggag tctgcanaag gagagcccac cttteacctc     240
        cagtttgcat tcaatctcca ctgtcccaag gtcattgact gctttgcagc agtaagtgcc     300
        tccatcatag gggctgggct tgcgaatttc cagggtacag actccctggt tgctgaacat     360
        cctgtatctt ggatcatcca caatagcaac tttgtttttc atccaggtta ttttaggctt     420
        aggatttcct ctcacactgc agtttagggt ggcattgtaa ccagctatgg cataggtgtt     480
        aaccaaaggc tgagtaaaca tgggtgcctc tgagaaatca aaagtcttca tcactgggat     540
        tttgtagatt taccatccct ggcgancact ggactttttt aatcatnggg gnattcctcc     600
        tgagggnccc acatgttttt caaaaaaaaa cccggaagga attttttttcc ctttgaccaa     660
        ttnaatt                                                              667

        <210> 541
        <211> 763
        <212> DNA
        <213> Homo sapiens

        <400> 541
        cctgcctcag cctcccaagt agctgggacc acaggcagtt atacttaagc atgaacattg      60
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177

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      acgacaaact ggaaggattg tttcttaaat gtggcggcat agacgaaatg cagtcttcca    120
      ggacaatggt tgtaatgggt ggagtgtctg gccagtctac tgtgtctgga gagctacagg    180
      attcagtact tcaagatcga agtatgcctc accaggagat ccttgctgca gatgaagtgt    240
      tacaagaaag tgaaatgaga caacaggata tgatatcaca tgatgaactc atggtccatg    300
   5  aggagacagt gaaaaatgat gaagagcaga tggaaacaca tgaaagactt cctcaaggac    360
      tacagtatgc acttaatgtc cctataagcg taaagcagga aattactttt actgatgtat    420
      ctgagcaact gatgagagac aaaaaacaaa tcagagagcc agtagactta cagaaaaaga    480
      agaagcggaa acaacgttct cccgcaaaaa tccttacaat aaatgaggat ggatcacttg    540
  10  gtttgaaaac ccctaaatct cacgtttgtg agcactgcaa tgctgccttt agaacgaact    600
      atccttacag agacatgtct tcttcataca ggtgaaaaac catttcaatg tagtccatgn    660
      gacatgcgnt tcataccana antacctgct ttagagacat tgaaaagatt cntactggtg    720
      naaaacccTT ttcccttgng aatgaatgtg ggtttgagaa ttc                      763
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         <210> 542
  15     <211> 778
         <212> DNA
         <213> Homo sapiens


         <400> 542
  20   agttttctg attcagatga tgatagctgt ctttggaaac gcaaacgaca gaaatgtttt     60
       aaccctcctc ccaaaccaga gccttttcag tttggccaga gcagtcagaa accacctgtt    120
       gctggaggaa agaagattaa caacatatgg ggtgctgtgc tgcaggaaca gaatcaagat    180
       gcagtggcca ctgaacttgg tatcttggga atggagggca ctattgacag aagcagacaa    240
       tccgagacct acaattattt gcttgccaag aaacttagga aggaatctca agagcataca    300
  25   aaagatctag acaaggaact agatgaatat atgcatggtg gcaaaaaaat gggatcaaag    360
       gaagaggaaa atgggcaagg tcatctcaaa aggaaacgac ctgtcaaaga caggctaggg    420
       aacagaccag aaatgaacta taaaggtcga taccagatca cagcggaaga ttctcaagag    480
       aaagtggctg atgaaatttc attcaggtta caggaaccaa agaaagacct gatagccccg    540
       agtagtgagg attattggta caaaaaggca attgaacttc tgatggaaac ccgctgaagt    600
  30   tgacaaaatg gnggctttta tatgaatggn agtcgaagaa aaacccaagt ggagtttnt     660
       gatctttgaa acactctagt tnagcgagga caantaaggc atttntctnt tgaaaccaan    720
       ggatntaaaa taaaaactgt tgaaaaggga cacagtgttn gggaaaaata aaaacttt     778
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         <210> 543
  35     <211> 725
         <212> DNA
         <213> Homo sapiens


         <400> 543
  40   gagacagagt cttgctctgt cgcccaggct ggagtacagt ggtacgatct cagctcactg     60
       caacctttgc ctcccgggtt caggtgattc tcctgcctca gcctcccgag tagccgggat    120
       tataggcatg gagaaccaca cctggctagn ttttgtattt ttagtanaga tgaagtttca    180
       ccatgttggc ctggctggtc tcaaactcct gacctcaagt gatctgcccg ccttggtctc    240
       ccaaagtgtt gggattacag gcgtgagcca ccgtgcctgg ccaatgttag tttttatcct    300
  45   taaaattgcc tgagttctta gaacacagaa aaaacaaatt tgaatgcatt tctaacagct    360
       taataattta tatgtcccat tatgatttta gcggaatgtt ttaaagcaaa gcataattca    420
       ctgcaaagat aaacctgaaa aagcaaacaa acttacaaat ggtatgttat gacctagaca    480
       aaactgatta tcaactagta atactcataa ttagcacatg caacaagatt gagaaattaa    540
       atcctgtgct atatactctt aaagtatttt tgncaaaata tatctttaaa atgttctatc    600
  50   aattgcattt ctttccacac atattttaa accaagaaaa acaanttggt cttttcctcc     660
       aagaattctc atggtttatt caagtggcaa aaacgttggc aatctcaagt taaaaaatgg    720
       ggtta                                                                725
```

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         <210> 544
  55     <211> 904
         <212> DNA
         <213> Homo sapiens


         <400> 544
  60   tggagctcgc gcgcctgcag gtcgacacta gtggatccaa agctgccttc gagcctgcca     60
       ttgatatgca aaagtctgtt ccaaataaag ccttggaatt gaagaatgaa caaacattga    120
       gagcagatga gatactccca tcagaatcca acaaaaggga ctatgaagaa agttcttggg    180
       attctgagag tctctgtgag actgtttcac agaaggatgt gtgtttaccc aaggctgcgc    240
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atcaaaaaga aatagataaa ataaatggaa aattagaagg gtctcctgtt aaagatggtc    300
ttctgaaggc taactgcgga atgaaagttt ctattccaac taaagcctta gaattgatgg    360
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tgaaggctaa ctgcggaatg aaagtttcta ttccaactaa agccttagaa ttgatggaca    720
tgcaaacttt caaagcagag cctcccgaga gccatctgc cttcgagcct gccattgaaa    780
tgcaaaaagt ctgttccaaa taaagccttg gaattggaag aatgaacaaa cattgagagc    840
cgatgaaata ctcccatcag aatccaacca aaggactatt gaagaaagtt cttgggattt    900
ttga                                                                 904
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        <210> 545
        <211> 1088
        <212> DNA
        <213> Homo sapiens

        <400> 545
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ggttttttaa atggttattg taattaaata tctcctcatt tttctctttt aggagatgat    180
gttgcatttt cctctcaaga aaatgaatat caattgttat cttgcttttg ttgtcagctt    240
tcttatgtgc atgaactaat tgctgttgaa gccacatatt tttgctttgt agttgaaata    300
atttctgatc tanagactcc tgctgttcag tgtgtttgtt cacattatct tgttcgtttt    360
gatacatgtg ttcagcttcc ttcatttgac actgtgtttc acgttggtct ctttgtgcat    420
gttctgaaac caatgtattt tctcttanag catctccggc ataattgana ttaattttta    480
ggcttttgga tttcctttga gcttcaaaaa gtggttgatg gagcacctca ttgttatata    540
tcgtactact cacatcaaca ttcatttttc tttgcaaaca agcatctcct gcaatgtgga    600
aagcaggttc ttgacttttt cttgatgtca caatttgatc atggtcttgt acagcagaag    660
ccagtctagg atggtgtgat tcaatttctg cctctagtat ttctttgtct tgtttttcct    720
tcaatttaga agtgagcatt gtgttctcag ctatcagaac tttaagctgc ccactatatt    780
gagatgccct tttagttaat gattcctctt tcagttttag ggtcatctga agttcagcat    840
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gtttcagtgt ggctatttcc agttttagca tggcaatttc cttttcaac atgcaatttt    960
catgtaagag ataattttca ttttcatgag tgtgagaaac ctgattcaaa ttactttcta   1020
cactcttcaa ttctatatct tgtattctga gagcctgttc aagttgttgt ttcacttcta   1080
actctttc                                                             1088
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        <210> 546
        <211> 814
        <212> DNA
        <213> Homo sapiens

        <400> 546
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ctgttccaaa taaagccttg gaattgaaga tgaacaaac attgagagca gatgagatac    120
tcccatcaga atccaaacaa aaggactatg aagaaagttc ttgggattct gagagtctct    180
gtgagactgt ttcacagaag gatgtgtgtt tacccaaggc tgcgcatcaa aaagaaatag    240
ataaaataaa tggaaaatta gaagggtctc ctgttaaaga tggtcttctg aaggctaact    300
gcggaatgaa agtttctatt ccaactaaag ccttagaatt gatggacatg caaactttca    360
aagcagagcc tcccgagaag cccatctgct cgagcctgc cattgaaatg caaaagtctg    420
ttccaaataa agccttggaa ttgaagaatg aacaaacatt gagagcagat gagatactcc    480
catcagaatc caaacaagac tatgaag aaagttcttg ggattctgag agtctctgtg    540
agactgtttc canaaggatg tgtgttccc aaggctgcgc atcaaaaaga aatagattaa    600
ataatggaa attagaangg cttctgttaa gatgncttct gaagcttact gcggatgaaa    660
gttctnttcc acttaagcct taaaatgtng aatgcaactt tcaagcagag cctccganaa    720
gcattgcttn acctgcattg aaagcaaaag ctgtccataa acctggattg anaagacaac    780
ctggagcaat gaatctcctc naaccaccaa gctt                                814
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        <210> 547
        <211> 589
        <212> DNA
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<213> Homo sapiens

<400> 547
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gcctctaggg ttcaagccat tctcctgcct cagcctccca agtagctggg attacagagg   120
cgtgcaccac catgaccacc taattttttc ttgtttgttt tgtttttttg ggttttgttt   180
ttttttgana tggagtctct ctctgtcacc caggctggag tgcagtagtg ggatctcagc   240
tcacctgcct ccagggttca agccattctc ctgcctcagc ctcccaagta gctgggatta   300
cagaggcgtg caccaccatg cccacctaat tttttcttgt tttgnttttc tggttctttt   360
tganacanag tcttgctctg tcgcccaagc tggagtgcan tggcgcgatc taagctcact   420
gcaagctcca cctcccagat tcacgccatt ctgctatgag taaaatcacc tggttggatt   480
gaatgatgct gctgcatcat canggtagaa tgggaatcct gtgcaagctt tatgcaattc   540
gtgaacaaag taattcttca cactggtatt ttatgtctgt aaggcttca              589
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<210> 548
<211> 776
<212> DNA
<213> Homo sapiens

<400> 548
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agatactccc atcagaatcc aaacaaaagg actatgaaga aagttcttgg gattctgaga    60
gtctctgtga gactgtttca cagaaggatg tgtgtttacc caaggctgcg catcaaaaag   120
aaatagataa aataaatgga aaattagaag ggtctcctgt taaagatggt cttctgaagg   180
ctaactgcgg aatgaaagtt tctattccaa ctaaagcctt agaattgatg gacatgcaaa   240
ctttcaaagc agagcctccc gagaagccat ctgccttcga gcctgccatt gaaatgcaaa   300
agtctgttcc aaataaagcc ttggaattga agaatgaaca aacattgaga gcagatgaga   360
tactcccatc agaatccaaa caaaaggact atgaagaaag ttcttgggat tctgagagtc   420
tctgtgagac tgtttcacag aaggatgtgt gtttacccaa ggctgcgcat caaaaagaaa   480
tagataaaat aaatggaaaa ttagaagggt ctcctgttaa agatggtctt ctgaaggcta   540
actgcggaat gaaagtttct attccaacta aagccttaga attgatggac atgcaaactt   600
tcaaagcaga gcctcccgag aagccatctg ccttcgagcc tgccattgaa atgcaaaaag   660
tctgttncaa ataaagcctt ggnattggaa gaatgaacaa acattgagag ccgatgaaat   720
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<210> 549
<211> 820
<212> DNA
<213> Homo sapiens

<400> 549
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tttacccaag gctacacatc aaaaagaaat agataaaata aatggaaaat agaagagtc    180
tcctgataat gatggttttc tgaaggctcc ctgcagaatg aaagtttcta ttccaactaa   240
agccttagaa ttgatggaca tgcaaacttt caaagcagag cctcccgaga gccatctgc    300
cttcgagcct gccattgaaa tgcaaaagtc tgttccaaat aaagccttgg aattgaagaa   360
tgaacaaaca ttgagagcag atcagatgtt cccttcagaa tcaaaacaaa agaaggttga   420
agaaaattct gggattctg agagtctccg tgagactgtt tcacagaagg atgtgtgtgt   480
cccaaggcta cacatcaaaa agaaatggat aaaataagtg aaaattaga gagactctta   540
gcttcatcct gtaccaagag agtctgatag gtccctcat tttttctttc tgtgtcacgt    600
tttggaatct tgtcaagcan gaagctgaac attcttaaaa tcactaccta tcaaaatctt   660
gatcngtcan tcttgggaag accangggac ttcaaaagat actgggaccc ctcncggaaa   720
tgggccnatg aaaaaaagtt ttgntcttga aaaaactntc gaancaaana attaatcccc   780
gtttggnacc aaaagttaat ngggccaaac ccttccgggg                        820
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<210> 550
<211> 713
<212> DNA
<213> Homo sapiens

<400> 550
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tagcaaggct ctcgcataaa caatagtttt taaacgatgt cccatagaaa tctaaggtac   120
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        tacagaggac atagcagtat taagggataa tgaagtcaca gcttcagagc ctccatcctt    180
        tctttagcaa gttagctcta cttgtatctg ttctgtttta tataatatgg ttgcatctaa    240
        ctgttttaa aaaaagttct gttcttcaaa aaaattttaa gctatgaaaa tcactgatta    300
        agtcaaaccc tcattttaca aaagaggcaa cacaaactca gagcacttat gcctcaccat    360
    5   aggtcacaaa gccaagtagc tccaggccag aaatgggctt taggtcttcc gtctganact    420
        ggcatttgat gccagtgatt tcctccatat ttaggagaaa tgtatagatt ttaaaatata    480
        actcanagaa aatgcatgca tatggtaaaa ctgtcttcta gctcaatcat gtttaggggc    540
        aacagggtaa aaaatagntc tccagctaaa ttgngaatnc taaaattaga aatacaaagt    600
        aggccataga aactaatatc ntaacatcag gggagangga ggcaattaat ctatttgtaa    660
    10  agaacaagtt tggttaaaac tccanaaaaa aggacctcgg aagggagaaa aat            713


            <210> 551
            <211> 708
            <212> DNA
    15      <213> Homo sapiens


            <400> 551
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        aaggatgtgt gtttacccaa ggctgcgcat caaaaagaaa tagataaaat aaatggaaaa    120
    20  ttagaagggt ctcctgttaa agatggtctt ctgaaggcta actgcggaat gaaagtttct    180
        attccaacta aagccttaga attgatggac atgcaaactt caaagcaga gcctcccgag    240
        aagccatctg ccttcgagcc tgccattgaa atgcaaaagt ctgttccaaa taaagccttg    300
        gaattgaaga atgaacaaac attgagagca gatgagatac tcccatcaga atccaaacaa    360
        aaggactatg aagaaagttc ttgggattct gagagtctct gtgagactgt ttcacagaag    420
    25  gatgtgtgtt tacccaaggc tgcgcatcaa aaagaaatag ataaaataaa tggaaaatta    480
        gaagggtctc ctgttaaaga tggcttctga aggctaactg cggaatgaaa gttctattca    540
        actaaagcct tagaattgat ggacatgcca actttcaagc agacctccga gaagcctctg    600
        cttcnacctg cattgaatgc caaaatctgt tccaataaag ccttggaatt gaagaatgaa    660
        ccaacatttg agagcngatg agatctccct cagaatccac caaaggct                  708
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            <210> 552
            <211> 716
            <212> DNA
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            <400> 552
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        cttttaggag atgatgttgc attttcctct caagaaaatg aatatcaatt gttatcttgc    120
        ttttgttgtc agctttctta tgtgcatgaa ctaattgctg ttgaagccac atattttgc     180
    40  tttgtagttg aaataatttc tgatctanan actcctgctg ttcagtgtgt ttgttcacat    240
        tatcttgttc gttttgatac atgtgttcag cttccttcat ttgacactgt gtttcacgtt    300
        ggtctctttg tgcatgttct gaaaccaatg tatttttct tanagcatct ccggcataat    360
        tgagattaat ttttaggctt ttggatttcc tttgagcttc anaaagtggt tgatggagca    420
        cctcattgtt atatatcgta ctactcacat caacattcat ttttcttgc aaacaagcat     480
    45  ctcctgcaat gtggaaagca ggttcttgac ttttttcttga tgtcacaatt tgatcatggg    540
        cttgtccagc agaagccagt ctaggatggn ggtgattcaa tttctgcctc taatatttct    600
        ttggcttggt tttccttcaa tttaaaaagt gagcattgng gttctcaact ntcanaactt    660
        taagctgncc actttttga gaagcccctt ttagtaaaga atcctctttc agttta          716

    50      <210> 553
            <211> 713
            <212> DNA
            <213> Homo sapiens

    55      <400> 553
        aatgaacaaa cattgagagc agatgagata ctcccatcag aatccaaaca aaaggactat     60
        gaagaaagtt cttgggattc tgagagtctc tgtgagactg tttcacagaa ggatgtgtgt    120
        ttacccaagg ctgcgcatca aaaagaaata gataaaataa atggaaaatt agaagggtct    180
        cctgttaaag atggtcttct gaaggctaac tgcggaatga agtttctat tccaactaaa     240
    60  gccttagaat tgatggacat gcaaactttc aaagcagagc tcccgagaa gccatctgcc      300
        ttcgagcctg ccattgaaat gcaaaagtct gttccaaata aagccttgga attgaagaat    360
        gaacaaacat tgagagcaga tgagatactc catcagaat ccaaacaaaa ggactatgaa     420
        gaaagttctt gggattctga gagtctctgt gagactgttt cacanaagga tgtgtgtttc    480
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                                        183

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        ccaaggctgc gcatcaaaaa gaaatagata aaataaatgg aaaattaaag ggctcctgtt    540
        aagatggctt ctgaaggcta actgcggaat gaagtttcta tttcaactaa gccttagaat    600
        tgtggacatg ccaactttca agcaaacctc cganaagcct ntgcttctan cctgcnttga    660
        aagcaaagct gttccaataa gcctggaatg agaatgacca accttggagc aat            713

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            <210> 554
            <211> 750
            <212> DNA
            <213> Homo sapiens
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            <400> 554
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        cttttaggan atgatgttgc attttcctct caagaaaatg aatatcaatt gttatcttgc    120
        ttttgttgtc agctttctta tgtgcatgaa ctaattgctg ttgaagccac atattttgc     180
15      tttgtagttg aaataatttc tgatctanag actcctgctg ttcagtgtgt ttgttcacat    240
        tatcttgttc gttttgatac atgngttcag cttccttcat ttgacactgn gtttcacgtt    300
        ggtctctttg tgcatgttct gaaaccaatg tattttctct tanagcatct ccggcataat    360
        tgagattaat ttttaggctt ttggatttcc tttgagcttn anaaagtggt tgatggagca    420
        cctcattgtt atatatcgta ctactcacat caacattcat ttttcttgc aaacaagcat     480
20      ctcctgcant gtggaaagca ggttcttgac tttttcttga tgtccaattt gatcatggnc    540
        ttgtacagca aaaaccagtc taggatgggn ngaatcaatt tctggcncta gnatttcttt    600
        ggcttggttt cccttcaatt ttaaaaagtg aaccattgng nttctcaact ttcanaactt    660
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25
            <210> 555
            <211> 700
            <212> DNA
            <213> Homo sapiens
30
            <400> 555
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        accatgatca aattgtgaca tcaagaaaaa gtcaagaacc tgctttccac attgcaggag     120
        atgcttgttt gcaaagaaaa atgaatgttg atgtgagtag tacgatatat aacaatgagg     180
35      tgctccatca accactttct gaagctcaaa ggaaatccaa aagcctaaaa attaatctca      240
        attatgccgg agatgctcta agagaaaata cattggtttc agaacatgca caaagagacc     300
        aacgtgaaac acagtgtcaa atgaaggaag ctgaacacat gtatcaaaac gaacaagata     360
        atgtgaacaa acacactgaa cagcaggagt ctctagatca gaaattattt caactacaaa     420
        gcaaaaatat gtggcttcaa cagcaattag ttcatgcaca taagaaagct gacaacaaaa     480
40      gcaagataca attgatattc attttcttga gaggaaaatg caacatctct cctaaaagag     540
        aaaaatgagg agattttaat tacaataacc atttaaaaaa ccgttntatc atatgaaaag     600
        agaaagcnga aacngaagta gtttcaaaaa tntaatactt gcaacttctg gaagaaaagt     660
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45
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            <211> 665
            <212> DNA
            <213> Homo sapiens
50
            <400> 556
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        accgtgggtt gaaaatccct attctaaaat ctgaagcttc aaaatttgaa acttttaaaa     180
        tgcagacata attttctca atagtcanaa caaatatgag tattgactan aacaattgtc      240
55      ctctattana gtggtttctg tttatatttt attgattaag atatatttca aataaaactt     300
        tattatgtca atgtctgaaa aaataaatta tcagtataat atatttaatt gtaacaactg     360
        gtaagataga atattttcaa tttacacaat aacaggtagc atgtatgtca gatattatcc     420
        cctgcttagg caaatttata ataagcatg attatgtctc atgaaaaaat aaagcaatgt      480
        caattgaaag ttaaattgtt ctgcaccaac tagaaaacac atcctgaagc ataagggcaa     540
60      tgagagtcag aacagtcaga gaaagcttta tgaaaatgga aaatgtgtnc accaagtctg     600
        aatgaatgan ggatagatga acaaaaactg aaaatggang aacagcctga ggaangcaaa     660
        aagat                                                                 665
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<210> 557
<211> 770
<212> DNA
<213> Homo sapiens

<400> 557
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gaacaagtaa  ttcttcacac  tgttatttta  tgtctgtagg  cttcaggaan  aaatcatgaa     180
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gngatgctag  gactggcctc  ctagcatgag  ttgtgagtaa  agatctggtc  tgttgtttct     300
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catattgata  tatacggttt  tttaaatggt  tattgtaatt  aaatatctcc  tcattttct      420
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ggctctttgt  gcatgttctg  aaacccatgt  nttttctctt  aaaaccatct  ccggcataat     720
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<210> 558
<211> 735
<212> DNA
<213> Homo sapiens

<400> 558
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cttacatgaa  aattgcatgt  tgaaaaagga  aattgccatg  ctaaaactgg  aaatagccac     180
actgaaacac  caataccagg  aaaaggaaaa  taaatacttt  gaggacatta  agattttaaa     240
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ggcatctcaa  tatagtgggc  agcttaaagt  tctgatagct  gagaacacaa  tgctcacttc     360
taaattgaag  gaaaaacaag  acaaagaaat  actagaggca  gaaattgaat  cacaccatcc     420
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tagtaccgat  atataacaat  gaggngctcc  atcaaccact  ttctgaagct  caaangaaat     600
ncaaaagcct  aaaaattaat  ctcaattatg  cccgagatgc  tctaagaaaa  aatacattgg     660
tttcagaaca  tgcccaagag  gaccacgtgg  aacaaagtgt  caaatggaag  gaagctggaa     720
cccatgtttc  aaacc                                                         735
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<210> 559
<211> 664
<212> DNA
<213> Homo sapiens

<400> 559
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agaatgaaca  aacattgaga  gcagatgaga  tactcccatc  agaatccaaa  caaaaggact     120
atgaagaaag  ttcttgggat  tctgagagtc  tctgtgagac  tgtttcacag  aaggatgtgt     180
gtttacccaa  ggctgcgcat  caaaaagaaa  tagataaaat  aaatggaaaa  ttagaagggt     240
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aagccttaga  attgatggac  atgcaaactt  tcaaagcaga  gcctcccgag  aagccatctg     360
ccttcgagcc  tgccattgaa  atgcaaagt   ctgttccaaa  taaagccttg  gaattgaaga     420
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aagaaagttc  ttgggattct  gagagtctct  gtgagactgt  ttccagaagg  atgtgtgttt     540
acccaangct  tgcgcntcaa  aaagaaatag  ataaataaa   tggaaaatta  gaangtagat     600
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tgaa                                                                       664
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<210> 560
<211> 636
<212> DNA
<213> Homo sapiens

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        <400> 560
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   5    ctaactgcgg aatgaaagtt tctattccaa ctaaagcctt agaattgatg gacatgcaaa     180
        ctttcaaagc agagcctccc gagaagccat ctgccttcga gcctgccatt gaaatgcaaa     240
        agtctgttcc aaataaagcc ttggaattga agaatgaaca acattgaga gcagatgaga      300
        tactcccatc agaatccaaa caaaaggact atgaagaaag ttcttgggat tctgagagtc     360
        tctgtgagac tgtttcacag aaggatgtgt gtttacccaa ggctgcccat caaaaagaaa     420
  10    tagatnaaat anatggaaaa ttagaagggt ctcctgttaa agatggtctt ctgaaggcta     480
        actgcggaat gaaagtttct atttcaacta aagccttaag aattgatgga catgcaaact     540
        ttcaaagcag agcctnccga gaagccatct gccttcgagc ctgccattga aatgcacang     600
        tctgttccca aataaagccc ttggaattga agaatg                              636

  15        <210> 561
            <211> 751
            <212> DNA
            <213> Homo sapiens

  20        <400> 561
        aatttgaatc aggtttctca cactcatgaa aatgaaaatt atctcttaca tgaaaattgc      60
        atgttgaaaa aggaaattgc catgctaaaa ctggaaatag ccacactgaa acaccaatac     120
        caggaaaagg aaaataaata ctttgaggac attaagadtt taaaagaaaa gaatgctgaa     180
        cttcagatga ccctaaaact gaaagaggaa tcattaacta aaagggcatc tcaatatagt     240
  25    gggcagctta aagttctgat agctgagaac acaatgctca cttctaaatt gaaggaaaaa     300
        caagacaaag aaatactaga ggcagaaatt gaatcacacc atcctagact ggcttctgct     360
        gtacaagacc atgatcaaat tgtgacatca agaaaaagtc aagaacctgc tttccacatt     420
        gcaggagatg cttgtttgca aagaaaaatg aatgttgatg tgagtagtac gatatataac     480
        aatgaggtgc tccatcaacc actttctgaa gctcaaagga aatccaaaag cctaaaaatt     540
  30    aatctcaatt atgccggaga tgctctaaga gaaaatcatt ggtttcagaa catgcncaaa     600
        gagaccaacg tgaaacacag tgtcaaatga aggaagctga cacatgtntc aaaacgaaca     660
        agaataatgn ggaccaaacc acactgaacc agcaggangt cttttagatc cagaaatttn     720
        tttcaaactt ccaaagccaa aaaatttgtg g                                   751

  35        <210> 562
            <211> 671
            <212> DNA
            <213> Homo sapiens

  40        <400> 562
        ctaaaatgca aatctgatca tacaatttg cagctaaaaa ttctgcagtg gttcctcaag       60
        gttttatgat aaagtccaaa ctccttggcg tggtgtacag ggtacttagg atctggacct     120
        ttttgttgct tcacgtgttc acagggctgt tctttggttt ggaacacttc tcccaggtgt     180
        taggactcct tccccagttt ctctctctct cccctttctg ccccactccc tggcttggat     240
  45    taagtctccc actgacgcca ccctgtaggt atttatcaca gtccctatca cataggatta     300
        tctgtttctt tacttgtctg tttctacctt taaaccatga agtttttgaa ggacgagtca     360
        ggggtttagt aatctttag ttcagttaaa gatgactaat attggttaat tgcttgntat      420
        gtattagcaa caatgcaaat tcctggatgt gtaagtgatt catgggacat tgccctgacc     480
        tcattcttag atgaggngta gatgcagaga cccatgtctc tcgatttggg gggaggcaaa     540
  50    tgatggcctt cttagccaag tccaatccan tcctgcctat ttttggatgg ctgngaact      600
        aaanaaatgg ggttggcntt tttaaattgg ntagaaaaaa atccgaagaa taatattttg     660
        gggacatggt g                                                         671

            <210> 563
  55        <211> 722
            <212> DNA
            <213> Homo sapiens

            <400> 563
  60    catattgata tatacggttt tttaaatggt tattgtaatt aaatatctcc tcatttttct      60
        cttttaggag atgatgttgc attttcctct caagaaaatg aatatcaatt gttatcttgc     120
        ttttgttgtc agctttctta tgtgcatgaa ctaattgctg ttgaagccac atattttgc      180
        tttgtagttg aaataatttc tgatctanag actcctgctg ttcagtgtgt ttgttcacat     240
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186

```
tatcttgttc gttttgatac atgtgttcag cttccttcat ttgacactgt gtttcacgtt    300
ggtctctttg tgcatgttct gaaaccaatg tatttttctct tanagcatct ccggcataat    360
tganattaat ttttaggctt ttggatttcc tttgagcttc aaaaagtggt tgatggagca    420
cctcattgtt atatatcgta ctactcacat caacattcat ttttctttgc aaacaagcat    480
ctcctgcaat gtggaaagca ggttcttgac tttttcttga tgtcacaatt tgatcatggt    540
cttgtcagca naagccagtc tagggatggt gtgattcaat ttctgcctct agtatttctt    600
tggcttggtt ttccttcaat ttaaaaagtg aacattgggg ttctcaagct ttcaaaactt    660
taagctgncc cctttтnttg aaaagcccnt ttaagttaaa ggattccctc tttcaagttt    720
ta                                                                    722
```

           <210> 564
           <211> 1158
           <212> DNA
           <213> Homo sapiens

           <400> 564

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atgattacac cctatggtta tggaaaaaaa cgaatattca tatttagtat tatgacctaa    60
gtgtatatcc aagctgatca attcataaca cttcagtgat gagatgtcag ttgtncnttc    120
ggctgaactc tcatcataac tatgtacctt tccaaagata ggctatatta aagaacagga    180
tgaatggaat aatataagtg attctaatgt gtttcattaa agcctcccga gaagccatct    240
gccttcgagc ctgccattga aatgcaaaag tctgttccaa ataaagcctt ggaattgaag    300
aatgaacaaa cattgagagc agatgagata ctcccatcag aatccaaaca aaaggactat    360
gaagaaagtt cttgggattc tgagagtctc tgtgagactg tttcacagaa ggatgtgtgt    420
ttacccaagg ctgcgcatca aaaagaaata gataaaataa atggaaaatt agaaggtaga    480
tatgctgctg aatttagaac attctctgca atgataaggt ctcctgttaa agatggtctt    540
ctgaaggcta actgcggaat gaaagtttct attccaacta aagccttaga attgatggac    600
atgcaaactt tcaaagcaga acctcccgag aagccatctg ccttcgagcc tgccattgaa    660
atgcaaaagt ctgttccaaa taaagccttg gaattgaaga tgaacaaac attgagagca    720
gatgagatac tcccatcaga atccaaacaa aaggactatg aagaaagttc ttgggattct    780
gagagtctct gtgagactgt ttcacagaag gatgtgtgtt acccaaggc tgcgcatcaa    840
aaagaaatag ataaaataaa tggaaaatta gaagccatta gggatggaag cacctgacca    900
tggagagctg tgttctattt gcaatagggt ctcctgttaa aagatggtct tctgaaggct    960
aactgcggaa tgaaagtttc tattccaact aaagccttaa aattgatgga catgcaaact    1020
ttcaaagcag aacctcccga gaagccatct gccttcgagc cctgccattg aaatgccaaa    1080
agtctggttc caaataaagc ccttggaatt gaagaatgga acaaaccttt gggagccgga    1140
tggagatact tcccttcc                                                   1158
```

           <210> 565
           <211> 766
           <212> DNA
           <213> Homo sapiens

           <400> 565

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atgattacac cctatggtta tggaaaaaaa cgaatattca tatttagtat tatgacctaa    60
gtgtatatcc aagctgatca attcataaca cttcagtgat gagatgtcag ttgtncnttc    120
ggctgaactc tcatcataac tatgtacctt tccaaagata ggctatatta aagaacagga    180
tgaatggaat aatataagtg attctaatgt gtttcattaa agcctcccga gaagccatct    240
gccttcgagc ctgccattga aatgcaaaag tctgttccaa ataaagcctt ggaattgaag    300
aatgaacaaa cattgagagc agatgagata ctcccatcag aatccaaaca aaaggactat    360
gaagaaagtt cttgggattc tgagagtctc tgtgagactg tttcacagaa ggatgtgtgt    420
ttacccaagg ctgcgcatca aaaagaaata gataaaataa atggaaaatt agaaggtaga    480
tatgctgctg aatttagaac attctctgca atgataaggt ctcctgttaa agatggtctt    540
ctgaaggcta actgcggaat gaaagtttct attccaacta aagccttaga attgatggac    600
atgcaaactt tcaaagcaga acctcccgag aagccatctg ccttcgagcc tgncattgga    660
aagccaaaag tctgttncca ataaaagcc tttggaattg gaagaatgga ccaaccnttg    720
ggagcccgat gagaatactn cccttcagaa tnccaaccaa aagggc                    766
```

           <210> 566
           <211> 833
           <212> DNA
           <213> Homo sapiens

           <400> 566

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gatactccca tcagaatcca aacaaaagga ctatgaagaa agttcttggg attctgagag      60
tctctgtgag actgtttcac agaaggatgt gtgtttaccc aaggctgcgc atcaaaaaga     120
aatagataaa ataaatggaa aattagaagg tagatatgct gctgaattta gaacattctc     180
tgcaatgata aggtctcctg ttaaagatgg tcttctgaag gctaactgcg gaatgaaagt     240
ttctattcca actaaagcct tagaattgat ggacatgcaa actttcaaag cagagcctcc     300
cgagaagcca tctgccttcg agcctgccat tgaaatgcaa aagtctgttc caaataaagc     360
cttggaattg aagaatgaac aaacattgag agcagatgag atactcccat cagaatccaa     420
acaaaaggac tatgaagaaa gttcttggga ttctgagagt ctctgtgaga ctgtttcaca     480
gaaggatgtg tgtttaccca aggctgcgca tcaaaaagaa atagataaaa taaatggaaa     540
attagaagcc attagggatg gaagcacctg accatggaga gctgtgttct atttgcaata     600
gggtctcctg ttaaaagatg gtcttctgaa ngctaactgc ggaatgaaag tttctattcc     660
aactaaagcc ttanaattga tggacatgca aactttcaaa gcagaacctn ccgagaagcc     720
atntgncttc gagccctgnc attgaaatgc caaaagtctg gttccaaata aagnccttgg     780
naattgaaga atggaacaaa cctttgggag ccggatggag atacttccct tcc            833
```

<210> 567
<211> 758
<212> DNA
<213> Homo sapiens

<400> 567
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catattgata tatacggttt tttaaatggt tattgtaatt aaatatctcc tcattttttct     60
cttttaggag atgatgttgc attttcctct caagaaaatg aatatcaatt gttatcttgc     120
ttttgttgtc agctttctta tgtgcatgaa ctaattgctg ttgaagccac atattttgc     180
tttgtagttg aaataaattc tgatctagag actcctgctg ttcagtgtgt ttgttcacat     240
tatcttgttc gttttgatac atgtgttcag cttccttcat ttgacactgn gtttcacgtt     300
ggtctctttg tgcatgttct gaaaccaatg tattttctct tagagcatct ccggcataat     360
tganattaat ttttaggctt ttggatttcc tttgagcttc agaaagtggt tgatggagca     420
cctcattgtt atatatcgta ctactcacat caacattcat ttttctttgc aaacaagcat     480
ctcctgcaat gtggaaagca ggttcttgac tttttcttga tgtcacaatt tgatcatggn     540
cttgtcagca gaagccagtc taggatgggg ngattcaatt tctgcccta gnatttcttt     600
ggcttggttt tccttcaatt tanaagtgag cattgngttc tcagctntta naactttaag     660
ctggccncta tattggagan gccccttaa gttaaangat tcccctttca gntttangggg     720
ccatctgaag gtcaaccttc tttttctttt aaaaacct                            758
```

<210> 568
<211> 771
<212> DNA
<213> Homo sapiens

<400> 568
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ggcatgactt ggtcatctta ttaaatacaa cttctttcct aatacggccg ctttctctta      60
ctgatagtag gatatttctg ctttagttat tgtcacctta aatatatttt caatgttgaa     120
atcctcacag catgtttgat gaaatctagt tttcaaattt tcttagggtc tcctgttaaa     180
gatggtcttc tgaaggctaa ctgcggaatg aaagtttcta ttccaactaa agccttagaa     240
ttgatggaca tgcaaacttt caaagcagag cctcccgaga gccatctgc cttcgagcct     300
gccattgaaa tgcaaaagtc tgttccaaat aaagccttgg aattgaagaa tgaacaaaca     360
ttgagagcag atgagatact cccatcagaa tccaaacaaa aggactatga agaaagttct     420
tgggattctg agagtctctg tgagactgtt tcacagaagg atgtgtgttt acccaaggct     480
gcgcatcaaa aagaaataga taaataaat ggaaaattag aaggtagata tgctgctgaa     540
tttagaacat tctctgcaat gataaggnct cctgttaaaa gatggtcttc tgaaggctaa     600
ctgcggaaat gaaagtttct attccaacta aagccttaaa aatggatgga catgccaact     660
ttcaaagcag aagcctcccg agaagccctt ntggccttng agcctggcct tggaaatgca     720
aaagtctggt tccaaataa agnccttggg aattggaaga aatgaaccaa c              771
```

<210> 569
<211> 756
<212> DNA
<213> Homo sapiens

<400> 569
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ccttcaattt anaagtgagc attgngttct cagctatcan aactttaagc tgcccactat      60
attgagatgc ccttttagtt aatgattcct ctttcagttt tagggtcatc tgaagttcag     120
```

```
      cattctttc ttttaaaatc ttaatgtcct caaagtattt attttccttt tcctggtatt    180
      ggngtttcag ngnggctatt tccagtttta gcatggcaat ttcctttttc aacatgcaat    240
      tttcatgtaa ganataattt tcattttcat gagtgngaga aacctcacac tgcanagctc    300
      ttgttcccat ttaacttttt ggttctctaa ctgggatttt atttcttttg cttctgacag    360
      tttctttttc agtacacaaa acttcttttt catttgttcc attttttcctg ncgttgttca    420
      cagngatctt tttgaagttc ccttgctctt tcacaagaat gaacngtatc caaaattttt    480
      gataggctan ttgaatcttc tnattttcca cttattttat ccatttcttt ttgatgngaa    540
      ccttggggnc acccnccatc cttcttgnga acaagtctnc accgaggacc tttcannaaa    600
      ccccaaaaat tttcttcaac ccttcttttg ttttgattct tgaangggaa nancnggaac    660
      cgnctcnnaa tggtngggnc anttncttaa antccaangn cttttatttg ggaaacanac    720
      ctttgcattt naattggcng ggcnccaaag gcaaaa                              756
```

```
      <210> 570
      <211> 741
      <212> DNA
      <213> Homo sapiens
```

```
      <400> 570
      gaagccatct gccttcgagc ctgccattga aatgcaaaag tctgttccaa ataaagcctt    60
      ggaattgaag aatgaacaaa cattgagagc agatgagata ctcccatcag aatccaaaca    120
      aaaggactat gaagaaagtt cttgggattc tgagagtctc tgtgagactg tttcacagaa    180
      ggatgtgtgt ttacccaagg ctgcgcatca aaaagaaata gataaaataa atggaaaatt    240
      agaaggtaga tatgctgctg aatttggaac attctctgca atgataaggt ctcctgttaa    300
      agatggtctt ctgaaggcta actgcggaat gaaagtttct attccaacta aagccttaga    360
      attgatggac atgcaaactt tcaaagcaga gcctcccgag aagccatctg ccttcgagcc    420
      tgccattgaa atgcaaaagt ctgttccaaa taaagccttg gaattgaaga atgaacaaac    480
      attgagagca gatgagatct cccatcagaa tccaaacaaa aggactatga aaaaagttct    540
      tgggattctg agagtctctg tgagactgtt tcacagaaag gatgtgtgtt taccccaagn    600
      tgcgcntcaa aaggaaattg attaaattaa tgggaaaatt tanaanggtc ttctggtnaa    660
      aaaggncttn tgaaggctaa ctgcggaatg aaagttctat tccacttaaa gnccttanaa    720
      atggtgggca tgcaaacttt t                                               741
```

```
      <210> 571
      <211> 702
      <212> DNA
      <213> Homo sapiens
```

```
      <400> 571
      catattgata tatacggttt tttaaatggt tattgtaatt aaatatctcc tcattttttct    60
      cttttaggag atgatgttgc attttcctct caagaaaatg aatatcaatt gttatcttgc    120
      ttttgttgtc agcttcttta tgtgcatgaa ctaattgctg ttgaagccac atattttgc     180
      tttgtagttg aaataaattc tgatctanag actcctgctg ttcagtgtgt ttgttcacat    240
      tatcttgttc gttttgatac atgtgttcag cttccttcat ttgacactgt gtttcacgtt    300
      ggtctctttg tgcatgttct gaaaccaatg tattttctct tagagcatct ccggcataat    360
      tgagattaat ttttaggctt ttggatttcc tttgagcttc agaaagtggt tgatggagca    420
      cctcattgtt atatatcgga ctactcacat caacattcat ttttctttgc aaacaagcat    480
      ctcctgcaat gtggaaagca ggttcttgac ttttttcttga tgtcacaatt tgatcatggg    540
      ccttgnacca gcaaaaacca gtctaggaat ggngggggatc aatttccngc ctctagnatt    600
      tctttggnct tggtttccct caatttaaaa agtgaagcat tggnggtcct caacctnttc    660
      aaaaccttta accgcccccc tttttggaaa agccccttttt ag                        702
```

```
      <210> 572
      <211> 1030
      <212> DNA
      <213> Homo sapiens
```

```
      <400> 572
      aacaaaagga ctatgaagaa agttcttggg attctgagag tctctgtgag actgtttcac    60
      agaaggatgt gtgtttaccc aaggctacac atcaaaaaga aatagataaa ataaatggaa    120
      aattagaaga gtctcctgat aatgatggtt ttctgaaggc tccctgcaga atgaaagttt    180
      ctattccaac taaagcctta gaattgatgg acatgcaaac tttcaaagca gagcctcccg    240
      agaagccatc tgccatttag cctgccattg aaatgcaaaa gtctgttcca ataaagcct     300
      tggaattgaa gaatgaacaa acattgagag cagatcagat gttcccttca gaatcaaaac    360
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```
        aaaagaaggt tgaagaaaat tcttgggatt ctgagagtct ccgtgagact gtttcacaga    420
        aggatgtgtg tgtacccaag gctacacatc aaaaagaaat ggataaaata agtggaaaat    480
        tagaagattc aactagccta tcaaaaatct tggatacagt tcattcttgt gaaagagcaa    540
        gggaacttca aaaagatcac tgtgaacaac gtacaggaaa aatggaacaa atgaaaaaga    600
    5   agtttgtgt actgaaaaag aaactgtcag aagcaaaaga aataaaatca cagttagaga     660
        accaaaaagt taaatgggaa caagagctct gcagtgtgag ggttctcaca ctcatgaaaa    720
        tgaaaattat ctcttacatg aaaattgcat gttgaaaaag gaaattgcct gcttaaactg    780
        ggaataCCCC actggaaccc catcccggaa aagggaaata atactttgag gactttagat    840
        tttaaagaaa agaatgctgg acttcgatga ccttaactgg aagagggatc tttcttaaag    900
   10   ggtttcattt atgggcagct taagtttgat actggacaca tgctcctttt aattgaggga    960
        aacagacaag aatcttaggg gaaatgattc ccctcttact ggtttgtggc aaaccttgtc   1020
        aattggctca                                                          1030


            <210> 573
   15       <211> 782
            <212> DNA
            <213> Homo sapiens


            <400> 573
   20   gacttgaaga cagtcaaaga gaaggatgac attctgtttg aagaccttca agacaatgng     60
        aatgagaatg gtgaaggtga aatagaagat gaggaggagg agggttatga tgatgatgat    120
        gatgactggg actgggatga aggagttgga aaactcgcca agggttatgt ctggaatgga    180
        ggaagcaacc cacaggcaaa tcgacagacc tccgacagca gttcagccaa aatgtctact    240
        ccagcagaca aggtcttacg gaaatttgag aataaaatta atttagataa gctaaatgtt    300
   25   actgattccg tcataaataa agtcaccgaa aagtctagac aaaaggaagc agatatgtat    360
        cgcatcaaag ataaggcaga cagagcaact gtagaacagg tgttggatcc cagaacaaga    420
        atgattttat tcaagatgtt gactagagga atcataacag agataaatgg ctgcattagc    480
        acaggaaaag aagctaatgt atccatgcta gcacagcaaa tggagagagc agagcaatca    540
        aaatttataa aacttctatt ttggtgttca aagatcggga taaatatgta agtggagaat    600
   30   tcagatttcg tcatggctat tgtaaaggaa accctaagaa aatggggaaa acttgggccg    660
        aaaaagaaaa tgaaggactt aatcaggctt aaccacaagc agaaaatacc attgttccag    720
        aacccaataa tgcttaaaaa atcatgttcc ttggccatga agttttcatt cggggaaaaa    780
        aa                                                                   782


   35       <210> 574
            <211> 776
            <212> DNA
            <213> Homo sapiens


   40       <400> 574
        atttagcctg ccattgaaat gcaaaagtct gttccaaata aagccttgga attgaagaat     60
        gaacaaacat tgagagcaga tcagatgttc ccttcagaat caaaacaaaa gaaggttgaa    120
        gaaaattctt gggattctga gagtctccgt gagactgttt cacagaagga tgtgtgtgta    180
        cccaaggcta cacatcaaaa agaaatggat aaaataagtg gaaaattaga agattcaact    240
   45   agcctatcaa aaatcttgga tacagttcat tcttgtgaaa gagcaaggga acttcaaaaa    300
        gatcactgtg aacaacgtac aggaaaaatg gaacaaatga aaaagaagtt ttgtgtactg    360
        aaaaagaaac tgtcagaagc aaaagaaata aaatcacagt tagagaacca aaaagttaaa    420
        tgggaacaag agctctgcag tgtgagggtt ctcacactca tgaaaatgaa aattatctct    480
        tacatgaaaa ttgcatgttg aaaaggaaa ttgcntgctt aaactgggaa taccncactg    540
   50   gaaccccatc cnggaaaagg gaaataatac tttgangant ttagatttta agaaaanaa     600
        tgctggactt cgatgacctt aactggaaga nggatctttc ttaangggtn tcatntatgg    660
        gcagcttaag tntgatactg gacacatgct ccntntaatt gagggaaaca gacaagaatc    720
        ttaggggaaa tgattcccct cttactggtt gtggcaaac cttgtcaatt ggctca         776


   55       <210> 575
            <211> 741
            <212> DNA
            <213> Homo sapiens


   60       <400> 575
        gacttaaagt gatgatttaa tgctgtttca tgtattcaga ggtgtacaac catcacaatc     60
        aatttcagag catcctcata agtgcaccca aaagaaaccc tgtacttatt agcagtgaat    120
        ctctatttcc tcgcaaacct cctcccggtc ctaggcaagc actcatctac tttctctctc    180
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```
      tcaaacagat ttgcctattc tggacatttc atacagatca aatcatgcaa tatgaaacct    240
      tttgcaattg gcgtctttaa ttttacaagt cttcaaggng catttacctt gtaggtgttt    300
      cattacttca ttttatttac ttatttatgt atttagaaac atggtttgct ctgtcaccca    360
      ggctggagtg cagtgatgca taatcatagc tcactccagc cttgaatacc tgggctcaag    420
5     caatcctccc accccggcct cctgagtagc tgtggcagga gaatggcgtg aacctgggag    480
      gcagagtttg cagtgagccg agattgcgcc actgcactcc agcctgagtg acagagcgag    540
      attctggttg gattgaatga tgtctgctgc atcatcaggg tagatgggaa tcctgtgcag    600
      ctttatgcaa ttcgtgaaca agtaattctt cacactggta ttttatgtct gnagggcttc    660
      angaagaaat catgaatttt tcttctnaaa anaagtattc tggtgaaacc anactattgg    720
10    gtaagaattt caacataaag g                                             741
```

```
      <210> 576
      <211> 609
      <212> DNA
15    <213> Homo sapiens
```

```
      <400> 576
      gtgagactgt ttcacagaag gatgtgtgtg tacccaaggc tacacatcaa aaagaaatgg     60
      ataaaataag tggaaaatta gaagattcaa ctagcctatc aaaaatcttg gatacagttc    120
20    attcttgtga aagagcaagg gaacttcaaa aagatcactg tgaacaacgt acaggaaaaa    180
      tggaacaaat gaaaaagaag ttttgtgtac tgaaaaagaa actgtcagaa gcaaaagaaa    240
      taaaatcaca gttagagaac caaaaagtta aatgggaaca gagctctgc agtgtgagat     300
      tgactttaaa cccagaagaa gagaagagaa gaaatgccga tatattaaat gaaaaaatta    360
      gggaagaatt aggaagaatc gaagagcaca taggaaagag ttagaagtga aacaacactt    420
25    gaacaggctc tcagaataca agatatanaa ttgaagagtg tagaaagtna tttgaatcag    480
      ggttctcaca ctcatgaaaa tgaaaattat ctcttcntga aaattgcatg ttgaaaaagg    540
      gaattgcntg cttaaactgg aaatngccnc nctggaacnc ccatccngga aaagggaaat    600
      aaatctttg                                                           609
```

```
30    <210> 577
      <211> 739
      <212> DNA
      <213> Homo sapiens
```

```
35    <400> 577
      attgatatat acggnttttt aaatggttat tgtaattaaa tatctcctca tttttctctt     60
      ttaggagatg atgttgcatt ttcctctcaa gaaatgaat atcaattgtt atcttgcttt     120
      tgttgtcagc tttcttatgt gcatgaacta attgctgttg aagccacata ttttttgcttt    180
      gtagttgaaa taatttctga tctanagact cctgctgttc agtgtgtttg ttcacattat    240
40    cttgttcgtt ttgatacatg tgttcagctt ccttcatttg acactgngtt tcacgttggt    300
      ctctttgtgc atgttctgaa accaatgtat tttctcttag agcatctccg gcataattga    360
      gattaatttt taggctttg gatttccttt gagcttcaga aagtggttga tggagcacct    420
      cattgttata tatcgtacta ctcacatcaa cattcatttt tctttgcaaa caagcatctc    480
      ctgcaatgtg gaaagcaggt tcttgacttt ttcttgatgt cacaatttga tcatggtctt    540
45    gtacagcaga agccagtcta ggatggtgtg attcaatttc tgcctctang atttcnttgg    600
      cttgnttttc cttcaattta aaaagtgagc attgggttct caagctntca anaactttta    660
      actggcccac tttattggag atgccccttt taagttaaat ggattccctn tttcagtttt    720
      aaggggcatc ctggaagtc                                                739
```

```
50    <210> 578
      <211> 625
      <212> DNA
      <213> Homo sapiens
```

```
55    <400> 578
      gacttgaaga cagtcaaaga gaaggatgac attctgtttg aagaccttca agacaatgng     60
      aatgagaatg gtgaaggtga aatagaagat gaggaggagg agggttatga tgatgatgat    120
      gatgactggg actgggatga aggagttgga aaactcgcca agggttatgt ctggaatgga    180
      ggaagcaacc cacaggcaaa tcgacagacc tccgacagca gttcagccaa aatgtctact    240
60    ccagcagaca aggtcttacg gaaatttgag aataaaatta atttagataa gctaaatgtt    300
      actgattccg tcataaataa agtcaccgaa agtctagac aaaaggaagc agatatgtat    360
      cgcatcaaag ataaggcaga cagagcaact gtagaacagg tgttggatcc cagaacaaga    420
      atgattttat tcaagatgtt gactagagga atcataacag agataaatgg ctgcattagc    480
```

191

```
acaggaaaag aagctaatgt atccatgcta nccacagcaa atggagagag cagagcaatc    540
aaaatttatt aaacttctat tttggtgttc aaagatcggg attaaatatg taagtggaga    600
attcaagatt tcgtcatggc tattg                                          625
```

```
          <210> 579
          <211> 686
          <212> DNA
          <213> Homo sapiens

          <400> 579
atcaatgtca gggtccgtgg tgtgtttctt ggggcgggca tggtctccct gctcttcaga     60
gtctgtgtca gagcactcag agcttccaat atcttctgaa tcagaacaag tcctttcctc    120
cacttgattt tctaggagtg cagggacctt ctgaactcct gacaaatctt tcttcaatcc    180
tgtaacagtc tggtatagaa tattatcttg ttgggcattc atggccatgt cctcttcctt    240
caatttcata attatgtcca tatccctctc ataatttttc acttcattca aggttctagg    300
aatatatgct cgcttaaaca cctcttcatc cacatgatct tggctagacc gttcttcctt    360
ggtcctttga gatgctattt ccatggcctt tgagagataa gcatccatgt tctcatgtgt    420
aatggatgga tctgtgacaa attcaaagag ctcccgcaca gtcatgacag caacactgtg    480
cctcataaag aaatcattga cgttggcgca atcctttctc aagaactcca aggcatgtgg    540
gtggtcgtgc tccacggact gagacacgtc aatgatatac acgcctccac cgtggtacag    600
catgttaaat tcactgagat ctgcatggac aaagtctggc atcctgatac attcttctca    660
tgtactgaat gacctgcagg tcaact                                         686
```

```
          <210> 580
          <211> 701
          <212> DNA
          <213> Homo sapiens

          <400> 580
ctgaacctga tcagaaaccg gaacctgtgg acaaagtggc tgccatgaga gagttccggg     60
tgttgcacac tgccctgcac agcagctcct cttacaggga ggcggtcttt aagatgctca    120
gcaataagga gtctctggat cagatcattg tggccacccc aggcctcagc agtgacccta    180
ttgctcttgg ggttctccag gacaaggacc tcttctctgt cttcgctgat cccaatatgc    240
ttgatacgtt ggtgcctgct cacccagccc tcgtcaatgc cattgtcctg gttctgcact    300
ccgtagcagg cagtgcccca atgcctggga ctgactcctc ttcccggagc atgccctcca    360
gctcataccg ggatatgcca ggtggcttcc tgtttgaagg gctctcanat gatgaggatg    420
actttcaccc aaacaccagg tccacaccct ctagcagtac tcccagctcc cgccagcctc    480
ctggggtaca agtggagctg ctgggccccg gcccatcacc caaagtgagc tggccaccgc    540
cttggccctg ccagcactn cggagagcaa gcttttaaaa caccgacttn ctggcacccc    600
aagggtcatt tccttaagga ccttacccna tgtccctctg gtgtccagtc aaggggacgc    660
ccattaacca atgatctttt taagcccaag cccttacagc a                       701
```

```
          <210> 581
          <211> 696
          <212> DNA
          <213> Homo sapiens

          <400> 581
gagagttgac catcaggtat attggggaag ggagagatgg aggcaccttc atgagtgcct     60
cccaagggca gtagcctctg caacttgctg ggggttcagg ggaagcaggg agttcatggg    120
gctcctccag caaagatgag ctccagggct gcttggatgt ccccaccggt ggcctgcagg    180
gcccgcaggc tcagctcatc gtcctggatg cccatgtcac gtagctgctg cagctggggc    240
tgccactggc tctgaaggct gggctgccca naggcctgaa gggcatgctg tagggcttgg    300
ctgaagagat cattggtgat gggcgtccct gactggacac canaggacat tggtgaggtc    360
cctgaggaat gaccctgggt gccaggagtc ggtgtgtgag agctgctctc cggagtgctg    420
gccagggcca aggcggtggc cagctcactc tgggtgatgg ccgggggccc ancagctcca    480
ctgtacccca gggaggctgg gcgggagctg ggagtactgc taanagggtg tggacctggt    540
gtttgggtga aagtcatcct catcatctga gaaccttca  aacaggaagc ccctggcata    600
tcccggtatt agctggangg catgctccng gaanaggaat caatcccagg cattggggcc    660
ctgcctgctt ccgagtgcan aaccaggaac aatggc                             696
```

```
          <210> 582
          <211> 689
```

192

```
            <212> DNA
            <213> Homo sapiens

            <400> 582
  5   gcttccagga gcgcgcccgc atcgagaagg cttatgccca gcagttggct gactgggccc      60
      gaaagtggag ggggaccgtg gagaagggcc cccagtatgg cacactggag aaggcctggc     120
      atgccttttt cacggcggct gagcggctga gcgcgctgca cctggaggtg cgggagaagc     180
      cgcaagggca ggacagtgag cgggtgcgcg cctggcagcg gggggctttc caccggcctg     240
      tgctgggcgg cttccgcgag agccgggcgg ccgaggacgg cttccgcaag gcccagaagc     300
 10   cctggctgaa gaggctgaag gaggttgagg cttccaagaa aagctaccac gcagcccgga     360
      aggatgagaa gaccgcccag acgagggaga gccacgcaaa ggcagacagc gccgtctncc     420
      aggagcagct gcgcaaactg caggaacggg tggaacgctg tgccaaggag gccgagaaga     480
      caaaagctca gtatgagcag acgctggcag agctgcatcg ctacactcca cgctacatgg     540
      aggacatgga acaagccttt gagaccttgc aggcccgccg agcgccancg gcttctttc      600
 15   ttnaaggata tgctgntcac cttacaccaa cacctggacc tttttcagca gtgagaagtt     660
      ncatgaaact tcacccgtga cttgcacca                                        689


            <210> 583
            <211> 702
 20         <212> DNA
            <213> Homo sapiens


            <400> 583
      ggtgtttttg tttttgtgtg tgggtgtgtg tcaagtttta atacacgcta gaacaagcca      60
 25   caagagggtg ctgctaggcc agaactacac tcaccccaag cccaccccag gaaccccaaa     120
      gcagaggtca ggaactgagt ccacagctcc tggggaggcc caggcacccc tgaacgcttc     180
      tgtcacctct gacctcccat cttgccctca gcctagactc gtcccttccc taccagtccc     240
      ttccctagac aaaggcccct cccctccctg ggtcccagga cttcctccct caagggacag     300
      aggagcagcc agagagcgac ggttcagggc cctgagggtc cggctctcca ggagaagctg     360
 30   ggctctgaac cagggtgggt aaacgttgca gaagggctgt caggacactc aggcgcccac     420
      acactccacg tagttggcag ggtacaggcc aatgcggcca ctctgcaact ggccttggca     480
      ccagccctgc tcgtcctcct cactcatctt cagcagctcc tcccctgctc ggaagctcag     540
      ctcatcagct tcctggccag cgtagtcata gagtgccctn cccgaacccc ggtgggagcc     600
      tttcnggggac tctcttcatc tgaccactcc tcatcctgcc ccgtgcctgg ggaccccggg     660
 35   actggggtgg ggggcggngg catcnttgta ggccaatgnt tg                        702


            <210> 584
            <211> 647
            <212> DNA
 40         <213> Homo sapiens


            <400> 584
      ccgcccctcc cgatttcctc cgggctacag gcgacagagc tgagccaagc gtttactggg      60
      cagctgttac gctcagattc caaatgaaaa tgtttgagag cgctgactct acagccacaa     120
 45   gatctggcca ggatctctgg gctgaaattt gttcctgtct gccaaatcct gaacaagaag     180
      atggtgccaa caatgcattc tcagactcct ttgtggattc ttgccctgaa ggtgaaggcc     240
      agagggaggt ggctgacttt gctgtccagc cagctgtaaa gccttgggct cccttgcagg     300
      attcagaagt gtatttagca tctctagaga agaagctaag aagaatcaaa ggtttaaatc     360
      aggaagtgac ttccaaggac atgcttcgaa ctctggccca agccaagaag gaatgctggg     420
 50   atcggttcct ccaggagaag ttagcttcag agttctttgt ggatggactt gattctgatg     480
      agagcacctt ggaacatttc aagaggtggc tccagccaga taaagtagcc gtcagcacag     540
      aggaggtcca gtatctgatt cctccagagt cacaggttga gaaaccagtg gcccgaggac     600
      gaaccaccan ccggggggaca agccagcagc ngcagaaaca gttaatt                  647


 55         <210> 585
            <211> 712
            <212> DNA
            <213> Homo sapiens


 60         <400> 585
      actttcacat ttgatcttta gcagacttct aacctgcaga gacagagctc agccaagctg      60
      tgagacacag aggaaagcag cattttgatc cagtgtgcac tgggtcagtc acttcatccg     120
      agacagtcac acatgccagc cccaggtaag tccctggggg cttgcagctg ttttctttgt     180
```

```
ggagtggaaa tttgggtttt ttccttcagt ggatttctcc ctgctgctgt cactgagctc     240
cacgctgctc gctctggacc cgagacagct gctcggcgtg tgtgtgtgtg tgtgtgtgtg     300
tgtgtgtgtg tgtgtgtgtg tgtaatttac tgttctgctg ctgctggctt gtccccggct     360
gctggctcgt cctcggccac tggcttctca acctgtgact ctggaggaat cagatactgg     420
acctcctctg tgctgacggn tactttatct ggctggagcc acctcttgaa atgttccaag     480
gngctctcat cagaatcaag tccatccaca aaaaactctg aagctaactt ctcctggagg     540
aaccgatccc agcatttctt nttggcttgg gccaaagttc gaagcatgtc cttngaagtc     600
acttctgatn naaacctttg attcttctta ncttcttctc tanaaagctn aatcacctt      660
gaatnctgga aggggaccca aggntttaca gctggntgga cagnaaaatt ag             712
```

```
      <210> 586
      <211> 851
      <212> DNA
      <213> Homo sapiens

      <400> 586
accggctctg cgggcgccac caggcccaga ccaagctact accagaagtt gaattctaat      60
aattagctat tttataaagg taacgagaaa aaatacacta tgtctgatga agtttttagc     120
accactttgg catatacaaa gagtccaaaa gttaccaaaa gaactacttt ccaggatgag     180
ctaataagag caattacagc tcgctcagcc agacaaagga gttctgaata ctcagatgac     240
tttgacagtg atgagattgt ttctttaggt gattttctg acacttcagc agatgaaaat      300
tcagttaata aaaaaatgaa tgactttcat atatcagatg atgaagaaaa gaatccttca     360
aaactattgt ttttgaaaac caataaatca aacggtaaca taaccaaaga tgagccagtg     420
tgtgccatca aaaatgaaga ggaaatggca cctgatgggt gtgaagacat tgttgtaaaa     480
tctttctctg aatctcaaaa taaggatgag gaatttgaaa aagacaaaat aaaaatgaaa     540
cctaaaccca gaattctttc aattaaaagc acatcttcag aaaacaacag ccttgacaca     600
gatgatcact ttaaaccatc acctcggcca agggagtatg ttgaaaaaga aaagtcacat     660
ggagggagaa ggatggacta gaagataaag aaactgccct cagtgaagaa attggagtta     720
cattctgccc ttnttncctt caacgccgaa tggcntacaa ttagaagctg agaaaaaagc     780
attcttntga aaaaccttga tcctgnngga tctgctttac aagtctagca tcatcatcct     840
ttaaacaaat t                                                          851
```

```
      <210> 587
      <211> 675
      <212> DNA
      <213> Homo sapiens

      <400> 587
gcttgaaaaa agcttccttt ttttcattcc atttctcaac agcagttaaa ttatctttct      60
ttttctcggc aacagtttcc tcctctttct gtttctttgc tctttcatat tctctctcct     120
ttctattttt ctctttaaga tattccatct tttttctcttt ccattttca aaagcttgta     180
gtgcttctcc ttttcttgca gcattttctt cttcagtttt cctcttgttt ttttcttcaa     240
gcctcttttt ggcagctatt ttctttgctt ccttttcttt catagccttc caggcctcaa     300
atgatgctaa tgcttcttct cttttagcag cttttttctg ttcattttgg atccttaagt     360
tttcactttc aattcttttt attctgngca tttcatgtaa atatacattt ttcttttcta     420
accactcctg ataaacagct gcccttatgt tatctgctct atcaggttct atgctctgtt     480
tctgngaagg tttttggcca agactttaa agtccctaaa tagtgagaag aggtagttgt     540
cggtggagtc tcctttaga actaagattt cttcaaaaac tcagaggtca ttaatctggg     600
cagatgcncc tggatgctct attatttggg nggccttta ttccttatat ttcnatcttc     660
aatgggttct ttgaa                                                      675
```

```
      <210> 588
      <211> 642
      <212> DNA
      <213> Homo sapiens

      <400> 588
aaaatgaatt tgcccacacc ttttggncca attactgcgc gacctcccat gtatgaagac      60
tatatgccat tgcatgcacc tcttccaccc acatctcctc agccacctga ggaacctcct     120
ttgccagacg aggatgagga attatctagt gaagaatcag aatatgaaag cactgatgat     180
gaggaccgac agagaatgaa caaattaatg gaactagcaa atcttcagcc caaaagacct     240
aaaacaataa agcagcgcca tgtgagaaaa aagagaaaaa taaggatat gttgaataca     300
cctttgtgtc cttcacacag tttacatcca gtgctgttac cttcagatgt atttgaccaa     360
```

```
        ccacaacctg taggtaacaa aagaattgaa ttccatatat ctaccgacat gccagctgca      420
        tttaagaaag atttagaaaa ggaacaaaat tgtgaggaaa aaaatcatga tttacctgct      480
        actgaagttg atgcatccaa tataggattt ggaaaaatct tccccaaacc taatttggac      540
        atcacagagg agattaaaga agactctgat gaaatgcctt cagaatgtat ttctagaang      600
   5    gaattgggaa aaggcagaat ttctagaaaa agaaatggga ac                          642


            <210> 589
            <211> 650
            <212> DNA
  10        <213> Homo sapiens


            <400> 589
        ggaaaggaaa caatttattn tntttgngga aaatcattaa aatncatgta atntgtttcc       60
        aattcactgn tttaaaggcn tntanattta atttttaaat ncnctttcaa agctgttacc      120
  15    cncagttcca tantccaggg gggcaatttn ttcctntcaa agttanaaag cncttgaagg      180
        ncncgggatt caaaaaaacc nttnttaatt tttaacnctt tnttttttcct tccttaggat     240
        cttgntttgg nctancanat cgagcaaact gaaccnccat gggtttttcca aaaagcncat     300
        ntccattanc ttcctttaag gntttttgctg ntgctttttc attaggaagt ccaatgaaag     360
        cttgnccttt catacnacct ttttttnatna aacgtttntc aaacatgatc cnctgngttt     420
  20    ntgatgaaaa gncaacatnt nttccaaaaa tntntttaag gnccttttnt tgaacntgtt       480
        tagctaaatt ctttacntaa attctacagt ttggttcncc cggntcataa cttntgaaaa      540
        ctgaaagngt ttccatttct tntctaanaa attctgccct tttccaattn ccttttanaa      600
        atacattctg aangcctttc atcanaaagc ttctttaatc tccnctggga                 650


  25        <210> 590
            <211> 992
            <212> DNA
            <213> Homo sapiens


  30        <400> 590
        aacaaaagga ctatgaagaa agttcttggg attctgagag tctctgtgag actgtttcac       60
        agaaggatgt gtgtttaccc aaggctacac atcaaaaaga aatagataaa ataaatggaa      120
        aattanaaga gtctcctgat aatgatggtt ttctgaaggc tccctgcana atgaaagttt      180
        ctattccaac taaagcctta naattgatgg acatgcaaac tttcaaagca gagcctcccg      240
  35    agaagccntc tgccttcgag cctgccattg aaatgcaaaa gtctgttcca aataaagcct      300
        tggaattgaa gaatgaacna acattgagag cagatcagat gttcccttca naatcaaaac      360
        aaaagaaggn tgaagaaaat tcttgggatt ctganagtct ccntgagact gtttcacaga      420
        aggatgtgtg tgtacccaag gctacacatc aaaaagaaat ggataaaata agtggaaaat      480
        tagaagattc aactagccta tcaaaaatct tggatacagt tcattcttgt gaaagancaa      540
  40    nggaacttcn aaaagatcct gtgaacaacc gtacnngaaa aatggaacaa atgaaaaaga      600
        agttttggtg tnctgaaaaa gaaactgtcc gaagccaaag aagttaatca cggttggang      660
        aaccaaaaag tttantggga accaagagct ctgcatgtga ggttttcaca ctctngaaaa      720
        tgaaaattat ctnttacntg aaaattgctt gttgaaaaag gaaattgcct gcttaaactg      780
        ggaattgccc nctgaacncc cnttcccggg aaagggaaat natnctttgn nggccttaaa      840
  45    atttaaaaaa aaagaatggt ggacttctga tgaccttnac tgaagaggga tctttactta      900
        aagggccttt caatttaggg gcnccttnaa gttttgnnnc tggnaaacna angccncttt      960
        taattggngg gaaaccagac aagaaattct tt                                    992


            <210> 591
  50        <211> 738
            <212> DNA
            <213> Homo sapiens


            <400> 591
  55    atctacttat ttttattaac ctttaaaaaa tatatataaa gcacacattg atttcaatgt       60
        ttactgtttg ttacaagtgt tttgggtcct tacttagaag ttcagtgatg tttctgtgac      120
        cagaaataca tcataggaat gtcactctta tttatgtcag ttagcctatg gtaaaagtgg      180
        ttttattata cgtcctttcac ttaagctcag ttccaagacc tattgaccac gttaagtaag     240
        gactactac atactaagca tgaaggaga caggttactg tcagacag gagttacaaa          300
  60    tgcaattgac cctcgaatga catagtgtga actgcatggg tgctcttgtt agcagatatt      360
        tttcaagaaa tataaaaaaa tttggacgcc gggcacggta gctcacgcct gtaatcccag      420
        aactttggga ggccgaggcg gcggatcac gaggtcagga gatccagacc atcctggcta       480
        acacggngaa aacccgtctc tactaaaaat acaaaaaaaa aaataggtgg gcgtggtggc      540
```

```
aggcgcctgt agtcccacta ctcgggaggc tgtggcagga gaatggcgtg aacctgggag       600
gcagagtttg cagtgagccg aanattgcgc cactgcactc cacctgagtg acanaacgag       660
atctgggtgg attgaatgaa gtctgctgct catcagggna gatgggaatc ctgngcantt       720
tttgcaattn gggaacaa         .                                          738
```

```
        <210> 592
        <211> 681
        <212> DNA
        <213> Homo sapiens

        <400> 592
gttatgacga tgatgatgat gactgggact gggatgaagg agttggaaaa ctcgccaagg        60
gttatgtctg gaatggagga agcaacccac aggcaaatcg acagacctcc gacagcagtt       120
cagccaaaat gtctactcca gcagacaagg tcttacggaa atttgagaat aaaattaatt       180
tagataagct aaatgttact gattccgtca taaataaagt caccgaaaag tctagacaaa       240
aggaagcaga tatgtatcgc atcaaagata aggcagacag agcaactgta gaacaggtgt       300
tggatcccag aacaagaatg attttattca agatgttgac tagaggaatc ataacagaga       360
taaatggctg cattagcaca ggaaaagaag ctaatgtatn ccatgctagc acagcaaatg       420
gagagagcag agcaatcaaa atttataaaa cttctatttt ggtgttcaaa gatcgggata       480
aatatgtnag tggagaattc anatttcgtc atggctattg taaaggaaac cctangaaaa       540
tggngaaaac ttgggccnga aaagaaaat gaaggactta atcaggctta accacaagca       600
gaanataccn ttgttccaga acccaataat gcttaanaaa tcatgttcct tggccatgan       660
gttttcattc ggggaaaaaa a                                                 681
```

```
        <210> 593
        <211> 723
        <212> DNA
        <213> Homo sapiens

        <400> 593
cacatgttta ggaattttgt tttttctttt ctctctctgg gcttccttga ccatcttttt        60
tctttctttt ttatcaatgt cagggtccgt ggtgtgtttc ttgggggcggg catggtctcc       120
ctgctcttca nagtctgtgt canagcactc anagcttcca atatcttctg aatcanaaca       180
agtcctttcc tccacttgat tttctaggag tgcagggacc ttctgaactc ctgacaaatc       240
tttcttcaat cctgtaacag tctggtatan aatattatct tgttgggcat tcatggccat       300
gtcctcttcc ttcaatttca taattatgtc catatccctc tcataatttt tcacttcatt       360
caaggttcta ggaatatatg ctcgcttaaa cacctcttca tccacatgat cttggctaga       420
ccgttcttcc ttggtccttt gagatgctat ttccatggcc tttgagagat aagcatccat       480
gttctcatgt gtaatggatg gatctgtgac aaattcaaag agctcccgca cagtcatgac       540
agcaacactg tgcctcataa agaaatcatt gacgttggcg caatcctttc tcaagaactc       600
caaggcatgt ggggtggncc ggcctccacg gactggagac acgtcaatga tntacacncc       660
tnccccgggg nacagcatgt taaaatcact ganaatctgc atgggccaag tctggcatcc       720
tga                                                                      723
```

```
        <210> 594
        <211> 173
        <212> PRT
        <213> Homo sapiens

        <400> 594
```

```
Phe Arg Ile Glu Lys Asp Thr Ala Glu Glu Ile Asn Asn Met Lys Thr
1               5                   10                  15
Lys Phe Lys Glu Thr Ile Glu Lys Cys Asp Asn Leu Glu His Lys Leu
            20                  25                  30
Asn Asp Xaa Xaa Lys Glu Lys Gln Ser Val Glu Arg Lys Cys Xaa Gln
        35                  40                  45
Leu Asn Thr Lys Val Ala Lys Leu Thr Asn Glu Xaa Lys Glu Glu Gln
    50                  55                  60
Glu Met Asn Lys Cys Leu Xaa Ala Asn Gln Val Xaa Leu Gln Asn Lys
65                  70                  75                  80
Leu Lys Glu Glu Glu Arg Val Leu Lys Glu Thr Cys Asp Gln Lys Asp
                85                  90                  95
Leu Gln Ile Thr Glu Ile Gln Glu Gln Leu Arg Asp Val Met Phe Tyr
```

196

```
                  100                 105                 110
        Leu Glu Thr Gln Gln Lys Ile Asn His Xaa Pro Ala Glu Thr Arg Gln
                  115                 120                 125
        Glu Ile Gln Glu Gly Gln Ile Asn Ile Ala Met Ala Ser Ala Ser Ser
   5              130                 135                 140
        Pro Ala Xaa Arg Gly Ala Val Gly Ser Cys Pro Pro Gly Arg Ala Ala
        145                 150                 155                 160
        Ala Arg Gly Ala Ser Asp Leu Gln Ser Asn Arg His Pro
                        165                 170
  10
                <210> 595
                <211> 170
                <212> PRT
                <213> Homo sapiens
  15
                <400> 595
        Ser Trp Arg Ser Phe Glu Arg Arg Ser Val Arg Arg Lys Pro Ser Gly
        1               5                   10                  15
        Arg Ser Pro Ala Cys Pro Ser Pro Trp Arg Arg Lys Lys Arg Glu Ala
  20              20                  25                  30
        Arg Arg Lys Arg Arg Arg Pro Cys Met Arg Arg Arg Trp Lys Gly Lys
                  35                  40                  45
        Arg Ser Pro Arg Arg Arg Glu Asn Trp Gly Arg Thr Gln Thr Leu Thr
                  50                  55                  60
  25    Gln Ala Ser Cys Leu Ile Glu Thr Val Arg Arg Arg Ile Gly Phe
        65                  70                  75                  80
        Gly Lys Ser Cys Gly Arg Ser Gly Lys Pro Ser Arg Arg Arg Ser Arg
                        85                  90                  95
        Val Arg Arg Ser Arg Ser Pro Ser Ala Thr Gly Met Ala Leu Gly Thr
  30              100                 105                 110
        Gly Arg Thr Val Lys Met Arg Lys Gly Asn Thr Met Xaa Gln Phe Cys
                  115                 120                 125
        Xaa Xaa Arg Ser Arg Ser Phe Gly Lys Thr Phe Ser Glu Leu Arg Ser
                  130                 135                 140
  35    Pro Arg Val Glu His Leu Cys Thr Leu Xaa Glu Asp Phe Asp His Ser
        145                 150                 155                 160
        Leu Thr Xaa Thr Val Phe Thr Asn Ser Ser
                        165                 170
  40            <210> 596
                <211> 237
                <212> PRT
                <213> Homo sapiens
  45            <400> 596
        Gln Tyr Lys Gly Ala Ala Ser Glu Ala Gly Arg Ala Met His Leu Met
        1               5                   10                  15
        Lys Lys Arg Glu Lys Gln Arg Glu Gln Met Glu Gln Met Lys Gln Arg
                        20                  25                  30
  50    Ile Ala Glu Glu Asn Ile Met Lys Ser Asn Ile Asp Lys Lys Phe Ser
                  35                  40                  45
        Ala His Tyr Asp Ala Val Glu Ala Glu Leu Lys Ser Ser Thr Val Gly
        50                  55                  60
        Leu Val Thr Leu Asn Asp Met Lys Ala Lys Gln Glu Ala Leu Val Lys
  55    65                  70                  75                  80
        Glu Arg Glu Lys Gln Leu Ala Lys Lys Glu Gln Ser Lys Glu Leu Gln
                        85                  90                  95
        Met Lys Leu Glu Lys Leu Arg Glu Lys Glu Arg Lys Lys Glu Ala Lys
                  100                 105                 110
  60    Arg Lys Ile Ser Ser Leu Ser Phe Thr Leu Glu Glu Glu Glu Glu Gly
                  115                 120                 125
        Gly Glu Glu Glu Glu Glu Ala Ala Met Tyr Glu Glu Glu Met Glu Arg
                  130                 135                 140
```

```
Glu Glu Ile Thr Thr Lys Lys Arg Lys Leu Gly Lys Asn Pro Asp Val
145             150             155             160
Asp Thr Ser Phe Leu Pro Asp Arg Asp Arg Glu Glu Glu Glu Asn Arg
            165             170             175
Leu Trp Glu Glu Leu Arg Gln Glu Trp Glu Ala Lys Gln Glu Lys Ile
            180             185             190
Lys Ser Glu Glu Ile Glu Ile Thr Phe Ser Tyr Trp Asp Gly Ser Gly
        195             200             205
His Arg Pro Asp Ser Gln Asp Glu Lys Gly Gln His His Ala Xaa Val
    210             215             220
Leu Xaa Xaa Ala Leu Glu Ile Leu Arg Lys Asp Phe Gln
225             230             235
```

```
        <210> 597
        <211> 255
        <212> PRT
        <213> Homo sapiens


        <400> 597
Ser Lys Ser Ser Xaa Asn Val His Lys Cys Ser Thr Leu Gly Asp Leu
1               5               10              15
Ser Ser Leu Lys Val Phe Pro Lys Asp Leu Glu Arg Xaa Xaa Gln Asn
            20              25              30
Xaa Cys Met Val Leu Pro Phe Leu Ile Leu Thr Val Arg Pro Val Pro
        35              40              45
Arg Ala Ile Pro Val Ala Glu Gly Asp Leu Asp Leu Leu Thr Leu Asp
    50              55              60
Leu Leu Leu Leu Gly Phe Pro Leu Leu Pro Gln Leu Phe Pro Lys Pro
65              70              75              80
Ile Leu Leu Leu Leu Thr Val Ser Ile Arg Gln Glu Ala Cys Val Asn
            85              90              95
Val Trp Val Leu Pro Gln Phe Ser Leu Leu Arg Gly Asp Leu Phe Pro
            100             105             110
Phe His Leu Leu Leu Ile His Gly Arg Leu Leu Phe Leu Leu Ala Ser
    115             120             125
Leu Phe Phe Leu Leu Gln Gly Glu Gly Gln Ala Gly Asp Leu Pro Leu
    130             135             140
Gly Phe Leu Leu Thr Leu Leu Leu Ser Lys Leu Leu Gln Leu His Leu
145             150             155             160
Gln Leu Leu Gly Leu Leu Leu Leu Gly Gln Leu Leu Leu Pro Leu Leu
            165             170             175
His Gln Ser Leu Leu Leu Gly Leu His Val Ile Gln Gly His Glu Thr
    180             185             190
His Gly Ala Gly Leu Glu Leu Cys Leu His Arg Val Val Val Arg Arg
    195             200             205
Glu Leu Leu Val Asn Val Gly Phe His Asp Val Leu Leu Arg Asp Ala
    210             215             220
Leu Leu His Leu Leu His Leu Leu Ala Leu Leu Leu Pro Leu Leu His
225             230             235             240
Gln Val His Gly Ala Ala Gly Leu Ala Arg Gly Ala Leu Val Leu
            245             250             255
```

```
        <210> 598
        <211> 323
        <212> PRT
        <213> Homo sapiens


        <400> 598
His Leu Leu Lys Lys Arg Glu Arg Gln Arg Glu Gln Met Glu Val Leu
1               5               10              15
Lys Gln Arg Ile Ala Glu Glu Thr Ile Leu Lys Ser Gln Val Asp Lys
            20              25              30
Arg Phe Ser Ala His Tyr Asp Ala Val Glu Ala Glu Leu Lys Ser Ser
```

```
                35                    40                    45
      Thr Val Gly Leu Val Thr Leu Asn Asp Met Lys Ala Arg Gln Glu Ala
          50                    55                    60
      Leu Val Arg Glu Arg Glu Arg Gln Leu Ala Lys Arg Gln His Leu Glu
  5   65                    70                    75                    80
      Glu Gln Arg Leu Gln Gln Glu Arg Gln Arg Glu Gln Glu Gln Arg Arg
                          85                    90                    95
      Glu Arg Lys Arg Lys Ile Ser Cys Leu Ser Phe Ala Leu Asp Asp Leu
                          100                   105                   110
 10   Asp Asp Gln Ala Asp Ala Ala Glu Ala Arg Arg Ala Gly Asn Leu Gly
                          115                   120                   125
      Lys Asn Pro Asp Val Asp Thr Ser Phe Leu Pro Asp Arg Asp Arg Glu
                130                   135                   140
      Glu Glu Glu Asn Arg Leu Arg Glu Glu Leu Arg Gln Glu Trp Glu Ala
 15   145                   150                   155                   160
      Gln Arg Glu Lys Val Lys Asp Glu Glu Met Glu Val Thr Phe Ser Tyr
                          165                   170                   175
      Trp Asp Gly Ser Gly His Arg Arg Thr Val Arg Val Arg Lys Gly Asn
                          180                   185                   190
 20   Thr Val Gln Gln Phe Leu Lys Lys Arg Cys Arg Gly Cys Ala Arg Thr
                          195                   200                   205
      Ser Trp Ser Cys Ala Pro Pro Ala Trp Ser Ser Ser Cys Ser Ser Arg
                210                   215                   220
      Arg Thr Ser Ser Cys Arg Thr Thr Thr Pro Ser Thr Thr Ser Ser Ser
 25   225                   230                   235                   240
      Pro Gly Pro Gly Ala Arg Ala Gly Arg Ser Ser Thr Ser Met Cys Thr
                          245                   250                   255
      Met Thr Cys Arg Leu Val Lys Arg Arg His His Gly Glu Arg Thr Asn
                          260                   265                   270
 30   Ser His Ala Gly Gln Arg Trp Val Leu Xaa Asn Leu Tyr Gln Glu Glu
                          275                   280                   285
      Pro Ser Xaa Phe Xaa Pro Ala Xaa Pro Leu Gly Arg Pro Ile Asp Pro
                290                   295                   300
      Arg Arg Arg Lys Trp Gly Gln Ser Ser Pro Phe Arg Leu Gln Pro Gly
 35   305                   310                   315                   320
      Leu Ala Xaa
```

```
        <210> 599
 40     <211> 319
        <212> PRT
        <213> Homo sapiens

        <400> 599
 45  Lys Leu Pro Thr Arg Arg Pro Gly His Gly Met Ala Pro Lys Phe Pro
     1                 5                   10                   15
     Asp Ser Val Glu Glu Leu Arg Ala Ala Gly Asn Glu Ser Phe Arg Asn
                       20                   25                   30
     Gly Gln Tyr Ala Glu Ala Ser Ala Leu Tyr Gly Arg Ala Leu Arg Val
 50                    35                   40                   45
     Leu Gln Ala Gln Gly Ser Ser Asp Pro Glu Glu Glu Ser Val Leu Tyr
           50                   55                   60
     Ser Asn Arg Ala Ala Cys His Trp Lys Asn Gly Asn Cys Arg Asp Cys
     65                   70                   75                   80
 55  Ile Lys Asp Cys Thr Ser Ala Leu Ala Leu Val Pro Phe Ser Ile Lys
                       85                   90                   95
     Pro Leu Leu Arg Arg Ala Ser Ala Tyr Glu Ala Leu Glu Lys Tyr Pro
                       100                  105                  110
     Met Ala Tyr Val Asp Tyr Lys Thr Val Leu Gln Ile Asp Asp Asn Val
 60                    115                  120                  125
     Thr Ser Ala Val Glu Gly Ile Asn Arg Met Thr Arg Ala Leu Met Asp
                130                  135                  140
     Ser Leu Gly Pro Glu Trp Arg Leu Lys Leu Pro Ser Phe Pro Leu Val
```

```
          145                   150                   155                   160
          Pro Val Ser Ala Gln Lys Arg Trp Asn Phe Leu Pro Ser Glu Asn His
                              165                   170                   175
          Lys Glu Met Ala Lys Ser Lys Ser Lys Glu Thr Thr Ala Thr Lys Asn
                          180                   185                   190
          Arg Val Pro Ser Ala Gly Asp Val Glu Lys Ala Arg Val Leu Lys Glu
                      195                   200                   205
          Glu Gly Asn Glu Leu Val Lys Lys Gly Asn His Lys Lys Ala Ile Glu
                  210                   215                   220
          Lys Tyr Ser Glu Ser Leu Leu Cys Ser Asn Leu Glu Ser Ala Thr Tyr
          225                   230                   235                   240
          Ser Asn Arg Ala Leu Cys Tyr Leu Val Leu Lys Gln Tyr Thr Glu Ala
                              245                   250                   255
          Val Lys Asp Cys Thr Glu Ala Leu Lys Leu Asp Gly Lys Asn Val Lys
                          260                   265                   270
          Ala Phe Tyr Arg Arg Ala Gln Ala His Lys Ala Leu Lys Asp Tyr Lys
                      275                   280                   285
          Ser Ser Phe Ala Asp Ile Ser Asn Leu Leu Gln Ile Glu Pro Arg Asn
                  290                   295                   300
          Gly Pro Ala Gln Lys Leu Arg Gln Glu Val Lys Gln Asn Leu His
          305                   310                   315


              <210> 600
              <211> 195
              <212> PRT
              <213> Homo sapiens


              <400> 600
          Leu Thr Ile Lys Met Ser Thr Ala Asp Ala Leu Asp Asp Glu Asn Thr
          1                   5                   10                   15
          Phe Lys Ile Leu Val Ala Thr Asp Ile His Leu Gly Phe Met Glu Lys
                          20                   25                   30
          Asp Ala Val Arg Gly Asn Asp Thr Phe Val Thr Leu Asp Glu Ile Leu
                          35                   40                   45
          Arg Leu Ala Gln Glu Asn Glu Val Asp Phe Ile Leu Leu Gly Gly Asp
              50                   55                   60
          Leu Phe His Glu Asn Lys Pro Ser Arg Lys Thr Leu His Thr Cys Leu
          65                   70                   75                   80
          Glu Leu Leu Arg Lys Tyr Cys Met Gly Asp Arg Pro Val Gln Phe Glu
          40                  85                   90                   95
          Ile Leu Ser Asp Gln Ser Val Asn Phe Gly Phe Ser Lys Phe Pro Trp
                          100                   105                   110
          Val Asn Tyr Gln Asp Gly Asn Leu Asn Ile Ser Ile Pro Val Phe Ser
                      115                   120                   125
          Ile His Gly Asn His Asp Asp Pro Thr Gly Ala Asp Ala Leu Cys Ala
              130                   135                   140
          Leu Asp Ile Leu Ser Cys Ala Gly Phe Val Asn His Phe Gly Thr Val
          145                   150                   155                   160
          Gln Trp Leu Trp Glu Lys Ile Asp Ile Xaa Ser Gly Phe Cys Phe Lys
                              165                   170                   175
          Lys Gly Ser Pro Lys Gly Met Ala Leu Leu Leu Gly Leu Arg Xaa Pro
                          180                   185                   190
          Phe Xaa Glu
                      195


              <210> 601
              <211> 175
              <212> PRT
              <213> Homo sapiens


              <400> 601
          Glu Asp Gly Ala Asp Glu Ala Glu Ala Glu Ile Ile Gln Leu Leu Lys
          1                   5                   10                   15
```

```
        Arg Ala Lys Leu Ser Ile Met Lys Asp Glu Pro Glu Glu Ala Glu Leu
                    20                  25                  30
        Ile Leu His Asp Ala Leu Arg Leu Ala Tyr Gln Thr Asp Asn Lys Lys
                    35                  40                  45
  5     Ala Ile Thr Tyr Thr Tyr Asp Leu Met Ala Asn Leu Ala Phe Ile Arg
                    50                  55                  60
        Gly Gln Leu Glu Asn Ala Glu Gln Leu Phe Lys Ala Thr Met Ser Tyr
        65                  70                  75                  80
        Leu Leu Gly Gly Gly Met Lys Gln Glu Asp Asn Ala Ile Ile Glu Ile
  10                    85                  90                  95
        Ser Leu Lys Leu Ala Ser Ile Tyr Ala Ala Gln Asn Arg Gln Glu Phe
                    100                 105                 110
        Ala Val Ala Gly Tyr Glu Phe Cys Ile Ser Thr Leu Glu Glu Lys Ile
                    115                 120                 125
  15    Glu Arg Glu Lys Glu Leu Ala Glu Asp Ile Met Ser Val Glu Glu Lys
                    130                 135                 140
        Ala Asn Thr His Leu Leu Leu Gly Met Cys Leu Asp Ala Cys Ala Arg
        145                 150                 155                 160
        Tyr Leu Leu Phe Ser Lys Gln Pro Val Thr Gly Thr Lys Asp Val
  20                    165                 170                 175


        <210> 602
        <211> 937
        <212> PRT
  25    <213> Homo sapiens


        <400> 602
        Ala Pro Ala Ala Arg Ala Glu Gly Arg Glu Leu Arg Arg Glu Arg Thr
        1                   5                   10                  15
  30    Gly Trp Trp Ala Ser Glu Arg Arg Gly Met Val Asp Tyr His Ala Ala
                    20                  25                  30
        Asn Gln Ser Tyr Gln Tyr Gly Pro Ser Ser Ala Ala Met Ala Trp Arg
                    35                  40                  45
        Arg Gly Ser Met Gly Asp Tyr Met Ala Gln Glu Asp Asp Trp Asp Arg
  35    50                  55                  60
        Asp Leu Leu Leu Asp Pro Ala Trp Glu Lys Gln Gln Arg Lys Thr Phe
        65                  70                  75                  80
        Thr Ala Trp Ser Asn Ser His Leu Arg Lys Ala Gly Thr Gln Ile Glu
                    85                  90                  95
  40    Asn Ile Asp Glu Asp Phe Arg Asp Gly Leu Lys Leu Met Leu Leu Leu
                    100                 105                 110
        Glu Val Ile Ser Gly Glu Arg Leu Pro Lys Pro Glu Arg Gly Lys Met
                    115                 120                 125
        Arg Val His Lys Ile Asn Asn Val Asn Lys Ala Leu Asp Phe Ile Ala
  45    130                 135                 140
        Ser Lys Gly Ile Lys Leu Asp Phe His Arg Ala Glu Glu Ile Val Asp
        145                 150                 155                 160
        Gly Asn Ala Lys Met Thr Leu Gly Met Ile Trp Thr Ile Ile Leu Arg
                    165                 170                 175
  50    Phe Ala Ile Gln Asp Ile Ser Val Glu Glu Thr Ser Ala Lys Glu Gly
                    180                 185                 190
        Leu Leu Leu Trp Cys Gln Arg Lys Thr Ala Pro Tyr Lys Asn Val Asn
                    195                 200                 205
        Val Gln Asn Phe His Ile Ser Trp Lys Asp Gly Leu Ala Phe Asn Ala
  55    210                 215                 220
        Leu Ile His Arg His Arg Pro Glu Leu Ile Glu Tyr Asp Lys Leu Arg
        225                 230                 235                 240
        Lys Asp Asp Pro Val Thr Asn Leu Asn Asn Ala Phe Glu Val Ala Glu
                    245                 250                 255
  60    Lys Tyr Leu Asp Ile Pro Lys Met Leu Asp Ala Glu Asp Ile Val Asn
                    260                 265                 270
        Thr Ala Arg Pro Asp Glu Lys Ala Ile Met Thr Tyr Val Ser Ser Phe
                    275                 280                 285
```

```
         Tyr His Ala Phe Ser Gly Ala Gln Lys Ala Glu Thr Glu Thr Ala Ala
             290                 295                 300
         Asn Arg Ile Cys Lys Val Leu Ala Val Asn Gln Glu Asn Cys Ser Thr
         305                 310                 315                 320
   5     Ser Met Glu Asp Tyr Glu Lys Leu Ala Ser Asp Leu Leu Glu Trp Ile
                         325                 330                 335
         Arg Arg Thr Ile Pro Trp Leu Glu Asp Arg Val Pro Gln Lys Thr Ile
                     340                 345                 350
         Gln Glu Met Gln Gln Lys Leu Glu Asp Phe Arg Asp Tyr Arg Arg Val
   10                355                 360                 365
         His Lys Pro Pro Lys Val Gln Glu Lys Cys Gln Leu Glu Ile Asn Phe
             370                 375                 380
         Asn Ser Val Gln Thr Lys Leu Arg Leu Ser Asn Arg Pro Ala Phe Met
         385                 390                 395                 400
   15    Pro Ser Glu Gly Lys Met Val Ser Asp Ile Asn Asn Gly Trp Gln His
                         405                 410                 415
         Leu Glu Gln Ala Glu Lys Gly Tyr Glu Glu Trp Leu Leu Asn Glu Ile
                     420                 425                 430
         Arg Arg Leu Glu Arg Leu Asp His Leu Ala Glu Lys Phe Arg Gln Lys
   20                435                 440                 445
         Ala Ser Ile His Glu Ala Trp Thr Asp Gly Lys Glu Ala Met Leu Lys
             450                 455                 460
         His Arg Asp Tyr Glu Thr Ala Thr Leu Ser Asp Ile Lys Ala Leu Ile
         465                 470                 475                 480
   25    Arg Lys His Glu Ala Phe Glu Ser Asp Leu Ala Ala His Gln Asp Arg
                         485                 490                 495
         Val Glu Gln Ile Ala Ala Ser Ala Gln Glu Leu Asn Glu Leu Asp Tyr
                     500                 505                 510
         Tyr Asp Ser His Asn Val Asn Thr Arg Cys Gln Lys Ile Cys Asp Gln
   30                515                 520                 525
         Trp Asp Ala Leu Gly Ser Leu Thr His Ser Arg Arg Glu Ala Leu Glu
             530                 535                 540
         Lys Thr Glu Lys Gln Leu Glu Ala Ile Ile Asp Gln Leu His Leu Glu
         545                 550                 555                 560
   35    Tyr Ala Lys Pro Ala Ala Pro Phe Asn Asn Trp Met Glu Ser Ala Met
                         565                 570                 575
         Glu Asp Leu Gln Asp Met Phe Ile Val His Thr Ile Glu Glu Ile Glu
                     580                 585                 590
         Gly Leu Ile Ser Ala His Asp Gln Phe Lys Ser Thr Leu Pro Asp Ala
   40                595                 600                 605
         Asp Arg Glu Arg Glu Ala Ile Leu His Pro Gln Gly Gly Gln Arg Ile
             610                 615                 620
         Ala Glu Ser Asn His Ile Lys Leu Ser Gly Ser Asn Pro Tyr Thr Thr
         625                 630                 635                 640
   45    Val Thr Pro Gln Ile Ile Asn Ser Lys Trp Glu Lys Val Gln Gln Leu
                         645                 650                 655
         Val Pro Lys Arg Asp His Ala Leu Leu Glu Glu Gln Ser Lys Gln Gln
                     660                 665                 670
         Gln Ser Asn Glu His Leu Arg Arg Gln Phe Ala Ser Gln Ala Asn Val
   50                675                 680                 685
         Val Gly Pro Trp Ile Gln Thr Lys Met Glu Glu Ile Ala Ile Ser Ile
             690                 695                 700
         Glu Met Asn Gly Thr Leu Glu Asp Gln Leu Ser His Leu Lys Gln Tyr
         705                 710                 715                 720
   55    Glu Arg Ser Ile Val Asp Tyr Lys Pro Asn Leu Asp Leu Leu Glu Gln
                         725                 730                 735
         Gln His Gln Leu Ile Gln Glu Ala Leu Ile Phe Asp Asn Lys His Thr
                     740                 745                 750
         Asn Tyr Thr Met Glu His Ile Arg Val Gly Trp Glu Gln Leu Leu Thr
   60                755                 760                 765
         Thr Ile Ala Arg Thr Ile Asn Glu Val Glu Asn Gln Ile Leu Thr Arg
             770                 775                 780
         Asp Ala Lys Gly Ile Ser Gln Glu Gln Met Gln Glu Phe Arg Ala Ser
```

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```
       785                    790                    795                    800
       Phe Asn His Phe Asp Lys Asp His Gly Gly Ala Leu Gly Arg Gly Val
                       805                    810                    815
       Gln Gly Leu Pro His Gln Pro Gly Leu Arg Arg Gly Glu Arg Pro Ala
                       820                    825                    830
       Gly Glu Ala Glu Phe Asn Arg Ile Met Ser Leu Val Asp Pro Asn His
                       835                    840                    845
       Ser Gly Leu Val Thr Phe Gln Ala Phe Ile Asp Phe Met Ser Arg Glu
                       850                    855                    860
       Thr Thr Asp Thr Asp Thr Ala Asp Gln Val Ile Thr Ser Phe Lys Val
       865                    870                    875                    880
       Leu Ala Gly Asp Lys Asn Phe Ile Thr Ala Glu Glu Leu Arg Arg Glu
                       885                    890                    895
       Leu Pro Pro Asp Gln Ala Glu Tyr Cys Ile Ala Arg Met Ala Pro Tyr
                       900                    905                    910
       Gln Gly Pro Asp Gly Val Arg Gly Ala Leu Asp Tyr Lys Ser Phe Ser
                       915                    920                    925
       Thr Ala Leu Tyr Gly Glu Ser Asp Leu
                       930                    935

           <210> 603
           <211> 1884
           <212> PRT
           <213> Homo sapiens

           <400> 603
       Val Ala Gly Cys Arg Arg Arg Gly Ala Gly Asp Pro Asn Met Ala Asn
       1               5                   10                     15
       Leu Glu Glu Ser Phe Pro Arg Gly Gly Thr Arg Lys Ile His Lys Pro
                       20                    25                    30
       Glu Lys Ala Phe Gln Gln Ser Val Glu Gln Asp Asn Leu Phe Asp Ile
                       35                    40                    45
       Ser Thr Glu Glu Gly Ser Thr Lys Arg Lys Lys Ser Gln Lys Gly Pro
                       50                    55                    60
       Ala Lys Thr Lys Lys Leu Lys Ile Glu Lys Arg Glu Ser Ser Lys Ser
       65                    70                    75                    80
       Ala Arg Glu Lys Phe Glu Ile Leu Ser Val Glu Ser Leu Cys Glu Gly
                       85                    90                    95
       Met Arg Ile Leu Gly Cys Val Lys Glu Val Asn Glu Leu Glu Leu Val
                       100                   105                   110
       Ile Ser Leu Pro Asn Gly Leu Gln Gly Phe Val Gln Val Thr Glu Ile
                       115                   120                   125
       Cys Asp Ala Tyr Thr Lys Lys Leu Asn Glu Gln Val Thr Gln Glu Gln
                       130                   135                   140
       Pro Leu Lys Asp Leu Leu His Leu Pro Glu Leu Phe Ser Pro Gly Met
       145                   150                   155                   160
       Leu Val Arg Cys Val Ser Ser Leu Gly Ile Thr Asp Arg Gly Lys
                       165                   170                   175
       Lys Ser Val Lys Leu Ser Leu Asn Pro Lys Asn Val Asn Arg Val Leu
                       180                   185                   190
       Ser Ala Glu Ala Leu Lys Pro Gly Met Leu Leu Thr Gly Thr Val Ser
                       195                   200                   205
       Ser Leu Glu Asp His Gly Tyr Leu Val Asp Ile Gly Val Asp Gly Thr
                       210                   215                   220
       Arg Ala Phe Leu Pro Leu Leu Lys Ala Gln Glu Tyr Ile Arg Gln Lys
       225                   230                   235                   240
       Asn Lys Gly Ala Lys Leu Lys Val Gly Gln Tyr Leu Asn Cys Ile Val
                       245                   250                   255
       Glu Lys Val Lys Gly Asn Gly Gly Val Val Ser Leu Ser Val Gly His
                       260                   265                   270
       Ser Glu Val Ser Thr Ala Ile Ala Thr Glu Gln Gln Ser Trp Asn Leu
                       275                   280                   285
       Asn Asn Leu Leu Pro Gly Leu Val Val Lys Ala Gln Val Gln Lys Val
```

```
              290                      295                      300
     Thr Pro Phe Gly Leu Thr Leu Asn Phe Leu Thr Phe Phe Thr Gly Val
     305                      310                      315                320
 5   Val Asp Phe Met His Leu Asp Pro Lys Lys Ala Gly Thr Tyr Phe Ser
                          325                      330                      335
     Asn Gln Ala Val Arg Ala Cys Ile Leu Cys Val His Pro Arg Thr Arg
                      340                      345                      350
     Val Val His Leu Ser Leu Arg Pro Ile Phe Leu Gln Pro Gly Arg Pro
                      355                      360                      365
10   Leu Thr Arg Leu Ser Cys Gln Asn Leu Gly Ala Val Leu Asp Asp Val
                      370                      375                      380
     Pro Val Gln Gly Phe Phe Lys Lys Ala Gly Ala Thr Phe Arg Leu Lys
     385                      390                      395                400
     Asp Gly Val Leu Ala Tyr Ala Arg Leu Ser His Leu Ser Asp Ser Lys
15                        405                      410                      415
     Asn Val Phe Asn Pro Glu Ala Phe Lys Pro Gly Asn Thr His Lys Cys
                      420                      425                      430
     Arg Ile Ile Asp Tyr Ser Gln Met Asp Glu Leu Ala Leu Leu Ser Leu
                      435                      440                      445
20   Arg Thr Ser Ile Ile Glu Ala Gln Tyr Leu Arg Tyr His Asp Ile Glu
                      450                      455                      460
     Pro Gly Ala Val Val Lys Gly Thr Val Leu Thr Ile Lys Ser Tyr Gly
     465                      470                      475                480
     Met Leu Val Lys Val Gly Glu Gln Met Arg Gly Leu Val Pro Pro Met
25                        485                      490                      495
     His Leu Ala Asp Ile Leu Met Lys Asn Pro Glu Lys Lys Tyr His Ile
                      500                      505                      510
     Gly Asp Glu Val Lys Cys Arg Val Leu Leu Cys Asp Pro Glu Ala Lys
                      515                      520                      525
30   Lys Leu Met Met Thr Leu Lys Lys Thr Leu Ile Glu Ser Lys Leu Pro
                      530                      535                      540
     Val Ile Thr Cys Tyr Ala Asp Ala Lys Pro Gly Leu Gln Thr His Gly
     545                      550                      555                560
     Phe Ile Ile Arg Val Lys Asp Tyr Gly Cys Ile Val Lys Phe Tyr Asn
35                        565                      570                      575
     Asn Val Gln Gly Leu Val Pro Lys His Glu Leu Ser Thr Glu Tyr Ile
                      580                      585                      590
     Pro Asp Pro Glu Arg Val Phe Tyr Thr Gly Gln Val Val Lys Val Val
                      595                      600                      605
40   Val Leu Asn Cys Glu Pro Ser Lys Glu Arg Met Leu Leu Ser Phe Lys
                      610                      615                      620
     Leu Ser Ser Asp Pro Glu Pro Lys Lys Glu Pro Ala Gly His Ser Gln
     625                      630                      635                640
     Lys Lys Gly Lys Ala Ile Asn Ile Gly Gln Leu Val Asp Val Lys Val
45                        645                      650                      655
     Leu Glu Lys Thr Lys Asp Gly Leu Glu Val Ala Val Leu Pro His Asn
                      660                      665                      670
     Ile Arg Ala Phe Leu Pro Thr Ser His Leu Ser Asp His Val Ala Asn
                      675                      680                      685
50   Gly Pro Leu Leu His His Trp Leu Gln Ala Gly Asp Ile Leu His Arg
                      690                      695                      700
     Val Leu Cys Leu Ser Gln Ser Glu Gly Arg Val Leu Leu Cys Arg Lys
     705                      710                      715                720
     Pro Ala Leu Val Ser Thr Val Glu Gly Gly Gln Asp Pro Lys Asn Phe
55                        725                      730                      735
     Ser Glu Ile His Pro Gly Met Leu Leu Ile Gly Phe Val Lys Ser Ile
                      740                      745                      750
     Lys Asp Tyr Gly Val Phe Ile Gln Phe Pro Ser Gly Leu Ser Gly Leu
                      755                      760                      765
60   Ala Pro Lys Ala Ile Met Ser Asp Lys Phe Val Thr Ser Thr Ser Asp
                      770                      775                      780
     His Phe Val Glu Gly Gln Thr Val Ala Ala Lys Val Thr Asn Val Asp
     785                      790                      795                800
```

2o4

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        Glu Glu Lys Gln Arg Met Leu Leu Ser Leu Arg Leu Ser Asp Cys Gly
                    805                 810                 815
        Leu Gly Asp Leu Ala Ile Thr Ser Leu Leu Leu Asn Gln Cys Leu
                    820                 825                 830
   5    Glu Glu Leu Gln Gly Val Arg Ser Leu Met Ser Asn Arg Asp Ser Val
                    835                 840                 845
        Leu Ile Gln Thr Leu Ala Glu Met Thr Pro Gly Met Phe Leu Asp Leu
                    850                 855                 860
        Val Val Gln Glu Val Leu Glu Asp Gly Ser Val Val Phe Ser Gly Gly
   10   865             870                 875                 880
        Pro Val Pro Asp Leu Val Leu Lys Ala Ser Arg Tyr His Arg Ala Gly
                    885                 890                 895
        Gln Glu Val Glu Ser Gly Gln Lys Lys Val Val Ile Leu Asn Val
                    900                 905                 910
   15   Asp Leu Leu Lys Leu Glu Val His Val Ser Leu His Gln Asp Leu Val
                    915                 920                 925
        Asn Arg Lys Ala Arg Lys Leu Arg Lys Gly Ser Glu His Gln Ala Ile
                    930                 935                 940
        Val Gln His Leu Glu Lys Ser Phe Ala Ile Ala Ser Leu Val Glu Thr
   20   945             950                 955                 960
        Gly His Leu Ala Ala Phe Ser Leu Thr Ser His Leu Asn Asp Thr Phe
                    965                 970                 975
        Arg Phe Asp Ser Glu Lys Leu Gln Val Gly Gln Gly Val Ser Leu Thr
                    980                 985                 990
   25   Leu Lys Thr Thr Glu Pro Gly Val Thr Gly Leu Leu Leu Ala Val Glu
                    995                 1000                1005
        Gly Pro Ala Ala Lys Arg Thr Met Arg Pro Thr Gln Lys Asp Ser Glu
                    1010                1015                1020
        Thr Val Asp Glu Asp Glu Glu Val Asp Pro Ala Leu Thr Val Gly Thr
   30   1025                1030                1035                104
        Ile Lys Lys His Thr Leu Ser Ile Gly Asp Met Val Thr Gly Thr Val
                    1045                1050                1055
        Lys Ser Ile Lys Pro Thr His Val Val Val Thr Leu Glu Asp Gly Ile
                    1060                1065                1070
   35   Ile Gly Cys Ile His Ala Ser His Ile Leu Asp Asp Val Pro Glu Gly
                    1075                1080                1085
        Thr Ser Pro Thr Thr Lys Leu Lys Val Gly Lys Thr Val Thr Ala Arg
                    1090                1095                1100
        Val Ile Gly Gly Arg Asp Met Lys Thr Phe Lys Tyr Leu Pro Ile Ser
   40   1105                1110                1115                112
        His Pro Arg Phe Val Arg Thr Ile Pro Glu Leu Ser Val Arg Pro Ser
                    1125                1130                1135
        Glu Leu Glu Asp Gly His Thr Ala Leu Asn Thr His Ser Val Ser Pro
                    1140                1145                1150
   45   Met Glu Lys Ile Lys Gln Tyr Gln Ala Gly Gln Thr Val Thr Cys Phe
                    1155                1160                1165
        Leu Lys Lys Tyr Asn Val Val Lys Lys Trp Leu Glu Val Glu Ile Ala
                    1170                1175                1180
        Pro Asp Ile Arg Gly Arg Ile Pro Leu Leu Leu Thr Ser Leu Ser Phe
   50   1185                1190                1195                120
        Lys Val Leu Lys His Pro Asp Lys Lys Phe Arg Val Gly Gln Ala Leu
                    1205                1210                1215
        Arg Ala Thr Val Val Gly Pro Asp Ser Ser Lys Thr Phe Leu Cys Leu
                    1220                1225                1230
   55   Ser Leu Thr Gly Pro His Lys Leu Glu Glu Gly Glu Val Ala Met Gly
                    1235                1240                1245
        Arg Val Val Lys Val Thr Pro Asn Glu Gly Leu Thr Val Ser Phe Pro
                    1250                1255                1260
        Phe Gly Lys Ile Gly Thr Val Ser Ile Phe His Met Ser Asp Ser Tyr
   60   1265                1270                1275                128
        Ser Glu Thr Pro Leu Glu Asp Phe Val Pro Gln Lys Val Val Arg Cys
                    1285                1290                1295
        Tyr Ile Leu Ser Thr Ala Asp Asn Val Leu Thr Leu Ser Leu Arg Ser
```

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                    1300              1305                  1310
        Ser Arg Thr Asn Pro Glu Thr Lys Ser Lys Val Glu Asp Pro Glu Ile
                1315                  1320                  1325
        Asn Ser Ile Gln Asp Ile Lys Glu Gly Gln Leu Leu Arg Gly Tyr Val
  5         1330                  1335                  1340
        Gly Ser Ile Gln Pro His Gly Val Phe Phe Arg Leu Gly Pro Ser Val
        1345                  1350                  1355                  136
        Val Gly Leu Ala Arg Tyr Ser His Val Ser Gln His Ser Pro Ser Lys
                    1365                  1370                  1375
 10     Lys Ala Leu Tyr Asn Lys His Leu Pro Glu Gly Lys Leu Leu Thr Ala
                1380                  1385                  1390
        Arg Val Leu Arg Leu Asn His Gln Lys Asn Leu Val Glu Leu Ser Phe
                1395                  1400                  1405
        Leu Pro Gly Asp Thr Gly Lys Pro Asp Val Leu Ser Ala Ser Leu Glu
 15         1410                  1415            ·     1420
        Gly Gln Leu Thr Lys Gln Glu Glu Arg Lys Thr Glu Ala Glu Glu Arg
        1425                  1430                  1435                  144
        Asp Gln Lys Gly Glu Lys Lys Asn Gln Lys Arg Asn Glu Lys Lys Asn
                    1445                  1450                  1455
 20     Gln Lys Gly Gln Glu Glu Val Glu Met Pro Ser Lys Glu Lys Gln Gln
                    1460                  1465                  1470
        Pro Gln Lys Pro Gln Ala Gln Lys Arg Gly Gly Arg Glu Cys Arg Glu
                1475                  1480                  1485
        Ser Gly Ser Glu Gln Glu Arg Val Ser Lys Lys Pro Lys Lys Ala Gly
 25         1490                  1495                  1500
        Leu Ser Glu Glu Asp Asp Ser Leu Val Asp Val Tyr Tyr Arg Glu Gly
        1505                  1510                  1515                  152
        Lys Glu Glu Ala Glu Glu Thr Asn Val Leu Pro Lys Glu Lys Gln Thr
                    1525                  1530                  1535
 30     Lys Pro Ala Glu Ala Pro Arg Leu Gln Leu Ser Ser Gly Phe Ala Trp
                    1540                  1545                  1550
        Asn Val Gly Leu Asp Ser Leu Thr Pro Ala Leu Pro Pro Leu Ala Glu
                1555                  1560                  1565
        Ser Ser Asp Ser Glu Glu Asp Glu Lys Pro His Gln Ala Thr Ile Lys
 35         1570                  1575                  1580
        Lys Ser Lys Lys Glu Arg Glu Leu Glu Lys Gln Lys Ala Glu Lys Glu
        1585                  1590                  1595                  160
        Leu Ser Arg Ile Glu Glu Ala Leu Met Asp Pro Gly Arg Gln Pro Glu
                    1605                  1610                  1615
 40     Ser Ala Asp Asp Phe Asp Arg Leu Val Leu Ser Ser Pro Asn Ser Ser
                    1620                  1625                  1630
        Ile Leu Trp Leu Gln Tyr Met Ala Phe His Leu Gln Ala Thr Glu Ile
                1635                  1640                  1645
        Glu Lys Ala Arg Ala Val Ala Glu Arg Ala Leu Lys Thr Ile Ser Phe
 45         1650                  1655                  1660
        Arg Glu Glu Gln Glu Lys Leu Asn Val Trp Val Ala Leu Leu Asn Leu
        1665                  1670                  1675                  168
        Glu Asn Met Tyr Gly Ser Gln Glu Ser Leu Thr Lys Val Phe Glu Arg
                    1685                  1690                  1695
 50     Ala Val Gln Tyr Asn Glu Pro Leu Lys Val Phe Leu His Leu Ala Asp
                1700·                 1705                  1710
        Ile Tyr Ala Lys Ser Glu Lys Phe Gln Glu Ala Gly Glu Leu Tyr Asn
                1715                  1720                  1725
        Arg Met Leu Lys Arg Phe Arg Gln Glu Lys Ala Val Trp Ile Lys Tyr
 55         1730                  1735                  1740
        Gly Ala Phe Leu Leu Arg Arg Ser Gln Ala Ala Ala Ser His Arg Val
        1745                  1750                  1755                  176
        Leu Gln Arg Ala Leu Glu Cys Leu Pro Ser Lys Glu His Val Asp Val
                    1765                  1770                  1775
 60     Ile Ala Lys Phe Ala Gln Leu Glu Phe Gln Leu Gly Asp Ala Glu Arg
                1780                  1785                  1790
        Ala Lys Ala Ile Phe Glu Asn Thr Leu Ser Thr Tyr Pro Lys Arg Thr
                1795                  1800                  1805
```

```
Asp Val Trp Ser Val Tyr Ile Asp Met Thr Ile Lys His Gly Ser Gln
    1810            1815            1820
Lys Asp Val Arg Asp Ile Phe Glu Arg Val Ile His Leu Ser Leu Ala
    1825            1830            1835                184
Pro Lys Arg Met Lys Phe Phe Phe Lys Arg Tyr Leu Asp Tyr Glu Lys
                1845            1850            1855
Gln His Gly Thr Glu Lys Asp Val Gln Ala Val Lys Ala Lys Ala Leu
                1860            1865            1870
Glu Tyr Val Glu Ala Lys Ser Ser Val Leu Glu Asp
        1875            1880
```

```
<210> 604
<211> 192
<212> PRT
<213> Homo sapiens
```

```
<400> 604
Asp Ala Leu Leu Arg Glu Phe Gln Glu Glu Ile Ala Arg Leu Lys Ala
1               5               10              15
Gln Leu Glu Lys Arg Ser Ile Glu Glu Lys Met Arg Leu Leu Lys Glu
                20              25              30
Lys Glu Lys Lys Met Glu Asp Leu Arg Arg Glu Lys Asp Ala Ala Glu
        35              40              45
Met Leu Gly Ala Lys Ile Lys Ala Met Glu Ser Lys Leu Leu Val Gly
    50              55              60
Gly Lys Asn Ile Val Asp His Thr Asn Glu Gln Gln Lys Ile Leu Glu
65              70              75              80
Gln Lys Arg Gln Glu Ile Ala Glu Gln Lys Arg Xaa Glu Arg Glu Ile
            85              90              95
Gln Gln Gln Met Glu Ser Arg Asp Glu Glu Thr Leu Glu Leu Lys Glu
            100             105             110
Thr Tyr Ser Ser Leu Gln Gln Glu Val Asp Ile Lys Thr Lys Lys Leu
            115             120             125
Lys Lys Leu Phe Xaa Lys Leu Gln Ala Val Lys Ala Glu Ile His Asp
    130             135             140
Leu Gln Glu Glu His Xaa Lys Glu Arg Gln Glu Leu Xaa Gln Thr Gln
145             150             155             160
Asn Glu Leu Thr Arg Glu Leu Lys Leu Lys His Leu Ile Ile Glu Asn
            165             170             175
Phe Ile Pro Leu Glu Glu Lys Ser Lys Ile Met Asn Arg Ala Phe Phe
            180             185             190
```

```
<210> 605
<211> 186
<212> PRT
<213> Homo sapiens
```

```
<400> 605
Lys Pro Gly Arg Glu Lys Gln Glu Gly Thr Met Ala Ser Ser Ser Gly
1               5               10              15
Asn Asp Asp Asp Leu Thr Ile Pro Arg Ala Ala Ile Asn Lys Met Ile
            20              25              30
Lys Glu Thr Leu Pro Asn Val Arg Val Ala Asn Asp Ala Arg Glu Leu
        35              40              45
Val Val Asn Cys Cys Thr Glu Phe Ile His Leu Ile Ser Ser Glu Ala
    50              55              60
Asn Glu Ile Cys Asn Lys Ser Glu Lys Lys Thr Ile Ser Pro Glu His
65              70              75              80
Val Ile Gln Ala Leu Glu Ser Leu Gly Phe Gly Ser Tyr Ile Ser Glu
            85              90              95
Val Lys Glu Val Leu Gln Glu Cys Lys Thr Val Ala Leu Lys Arg Arg
            100             105             110
Lys Ala Ser Ser Arg Leu Glu Asn Leu Gly Ile Pro Glu Glu Glu Leu
```

```
                 115                     120                    125
       Leu Arg Gln Gln Gln Glu Leu Phe Ala Lys Ala Arg Gln Gln Gln Ala
           130                     135                    140
       Glu Leu Ala Gln Gln Glu Trp Leu Gln Met Gln Gln Ala Ala Gln Gln
   5   145                     150                    155                160
       Ala Gln Leu Ala Ala Ala Ser Ala Ser Ala Ser Asn Gln Ala Gly Ser
                   165                     170                    175
       Ser Gln Asp Glu Glu Asp Asp Asp Ile
                   180                     185
  10
              <210> 606
              <211> 328
              <212> PRT
              <213> Homo sapiens
  15
              <400> 606
       Glu Pro Val Val Leu Arg Phe Met Ile Phe Cys Arg Leu Leu Ala Lys
         1               5                   10                     15
       Met Ala Asn Asn Asp Ala Val Leu Lys Arg Leu Glu Gln Lys Gly Ala
  20                 20                  25                     30
       Glu Ala Asp Gln Ile Ile Glu Tyr Leu Lys Gln Gln Val Ser Leu Leu
                   35                     40                     45
       Lys Glu Lys Ala Ile Leu Gln Ala Thr Leu Arg Glu Glu Lys Lys Leu
           50                     55                     60
  25   Arg Val Glu Asn Ala Lys Leu Lys Lys Glu Ile Glu Glu Leu Lys Gln
       65                     70                     75                 80
       Glu Leu Ile Gln Ala Glu Ile Gln Asn Gly Val Lys Gln Ile Ala Phe
                       85                     90                     95
       Pro Ser Gly Thr Pro Leu His Ala Asn Ser Met Val Ser Glu Asn Val
  30                 100                    105                    110
       Ile Gln Ser Thr Ala Val Thr Thr Val Ser Ser Gly Thr Lys Glu Gln
                   115                    120                    125
       Ile Lys Gly Gly Thr Gly Asp Glu Lys Lys Ala Lys Glu Lys Ile Glu
           130                    135                    140
  35   Lys Lys Gly Glu Lys Lys Glu Lys Lys Gln Gln Ser Ile Ala Gly Ser
       145                    150                    155                160
       Ala Asp Ser Lys Pro Ile Asp Val Ser Arg Leu Asp Leu Arg Ile Gly
                   165                    170                    175
       Cys Ile Ile Thr Ala Arg Lys His Pro Asp Ala Asp Ser Leu Tyr Val
  40                 180                    185                    190
       Glu Glu Val Asp Val Gly Glu Ile Ala Pro Arg Thr Val Val Ser Gly
                   195                    200                    205
       Leu Val Asn His Val Pro Leu Glu Gln Met Gln Asn Arg Met Val Ile
           210                    215                    220
  45   Leu Leu Cys Asn Leu Lys Pro Ala Lys Met Arg Gly Val Leu Ser Gln
       225                    230                    235                240
       Ala Met Val Met Cys Ala Ser Ser Pro Glu Lys Ile Glu Ile Leu Ala
                   245                    250                    255
       Pro Pro Asn Gly Ser Val Pro Gly Asp Arg Ile Thr Phe Asp Ala Phe
  50                 260                    265                    270
       Pro Gly Glu Pro Asp Lys Glu Leu Asn Pro Lys Lys Lys Ile Trp Glu
                   275                    280                    285
       Gln Ile Gln Pro Asp Leu His Thr Asn Asp Glu Cys Val Ala Thr Tyr
           290                    295                    300
  55   Lys Gly Val Pro Phe Glu Val Lys Gly Lys Gly Val Cys Arg Ala Gln
       305                    310                    315                320
       Thr Met Ser Asn Ser Gly Ile Lys
                   325
  60
              <210> 607
              <211> 347
              <212> PRT
              <213> Homo sapiens
```

                            208

```
           <400> 607
      Ala Pro Val Arg Glu Ala Ala Arg Ala Arg Gly Arg Arg Ala Gly Trp
      1               5                   10                  15
 5    Gly Ser Ala Ala Gln Cys Gln Arg Gln Arg Gln Thr Arg Ala Pro Arg
                  20                  25                  30
      Ser Pro Ala Arg Arg Leu Pro Trp Asp Ser Arg Ala Arg Thr Pro Ala
                  35              40                  45
      Leu Pro Val Arg Cys Pro Ser Met Glu Leu Leu Cys Cys Glu Gly Thr
 10        50              55                  60
      Arg His Ala Pro Arg Ala Gly Pro Asp Pro Arg Leu Leu Gly Asp Gln
      65                  70                  75                  80
      Arg Val Leu Gln Ser Leu Leu Arg Leu Glu Glu Arg Tyr Val Pro Arg
                  85                  90        ·         95
 15   Ala Ser Tyr Phe Gln Cys Val Gln Arg Glu Ile Lys Pro His Met Arg
                  100                 105                 110
      Lys Met Leu Ala Tyr Trp Met Leu Glu Val Cys Glu Glu Gln Arg Cys
                  115                 120                 125
      Glu Glu Glu Val Phe Pro Leu Ala Met Asn Tyr Leu Asp Arg Tyr Leu
 20        130             135                 140
      Ser Cys Val Pro Thr Arg Lys Ala Gln Leu Gln Leu Leu Gly Ala Val
      145             150                 155                 160
      Cys Met Leu Leu Ala Ser Lys Leu Arg Glu Thr Thr Pro Leu Thr Ile
                  165                 170                 175
 25   Glu Lys Leu Cys Ile Tyr Thr Asp His Ala Val Ser Pro Arg Gln Leu
                  180                 185                 190
      Arg Asp Trp Glu Val Leu Val Leu Gly Lys Leu Lys Trp Asp Leu Ala
                  195             200                 205
      Ala Val Ile Ala His Asp Phe Leu Ala Phe Ile Leu His Arg Leu Ser
 30        210             215                 220
      Leu Pro Arg Asp Arg Gln Ala Leu Val Lys Lys His Ala Gln Thr Phe
      225             230                 235                 240
      Leu Ala Leu Cys Ala Thr Asp Tyr Thr Phe Ala Met Tyr Pro Pro Ser
                  245                 250                 255
 35   Met Ile Ala Thr Gly Ser Ile Gly Ala Ala Val Gln Gly Leu Gly Ala
                  260                 265                 270
      Cys Ser Met Ser Gly Asp Glu Leu Thr Glu Leu Leu Ala Gly Ile Thr
                  275             280                 285
      Gly Thr Glu Val Asp Cys Leu Arg Ala Cys Gln Glu Gln Ile Glu Ala
 40        290             295                 300
      Ala Leu Arg Glu Ser Leu Arg Glu Ala Ser Gln Thr Ser Ser Ser Pro
      305             310                 315                 320
      Ala Pro Lys Ala Pro Arg Gly Ser Ser Ser Gln Gly Pro Ser Gln Thr
                  325                 330                 335
 45   Ser Thr·Pro Thr Asp Val Thr Ala Ile His Leu
                  340                 345


           <210> 608
           <211> 526
 50        <212> PRT
           <213> Homo sapiens


           <400> 608
      Ser Gly Ala Ala Ala Lys Met Pro Leu Glu Leu Thr Gln Ser Arg Val
 55   1               5                   10                  15
      Gln Lys Ile Trp Val Pro Val Asp His Arg Pro Ser Leu Pro Arg Ser
                  20                  25                  30
      Cys Gly Pro Lys Leu Thr Asn Ser Pro Thr Val Ile Val Met Val Gly
                  35              40                  45
 60   Leu Pro Ala Arg Gly Lys Thr Tyr Ile Ser Lys Lys Leu Thr Arg Tyr
           50              55                  60
      Leu Asn Trp Ile Gly Val Pro Thr Lys Val Phe Asn Val Gly Glu Tyr
      65                  70                  75                  80
```

```
        Arg Arg Glu Ala Val Lys Gln Tyr Ser Ser Tyr Asn Phe Phe Arg Pro
                         85              90              95
        Asp Asn Glu Glu Ala Met Lys Val Arg Lys Gln Cys Ala Leu Ala Ala
                    100             105             110
    5   Leu Arg Asp Val Lys Ser Tyr Leu Ala Lys Glu Gly Gly Gln Ile Ala
                    115             120             125
        Val Phe Asp Ala Thr Asn Thr Thr Arg Glu Arg Arg His Met Ile Leu
            130             135             140
        His Phe Ala Lys Glu Asn Asp Phe Lys Ala Phe Phe Ile Glu Ser Val
    10  145             150             155             160
        Cys Asp Asp Pro Thr Val Val Ala Ser Asn Ile Met Glu Val Lys Ile
                    165             170             175
        Ser Ser Pro Asp Tyr Lys Asp Cys Asn Ser Ala Glu Ala Met Asp Asp
                    180             185             190
    15  Phe Met Lys Arg Ile Ser Cys Tyr Glu Ala Ser Tyr Gln Pro Leu Asp
                    195             200             205
        Pro Asp Lys Cys Asp Arg Asp Leu Ser Leu Ile Lys Val Ile Asp Val
                    210             215             220
        Gly Arg Arg Phe Leu Val Asn Arg Val Gln Asp His Ile Gln Ser Arg
    20  225             230             235             240
        Ile Val Tyr Tyr Leu Met Asn Ile His Val Gln Pro Arg Thr Ile Tyr
                    245             250             255
        Leu Cys Arg His Gly Glu Asn Glu His Asn Leu Gln Gly Arg Ile Gly
                    260             265             270
    25  Gly Asp Ser Gly Leu Ser Ser Arg Gly Lys Lys Phe Ala Ser Ala Leu
                    275             280             285
        Ser Lys Phe Val Glu Glu Gln Asn Leu Lys Asp Leu Arg Val Trp Thr
            290             295             300
        Ser Gln Leu Lys Ser Thr Ile Gln Thr Ala Glu Ala Leu Arg Leu Pro
    30  305             310             315             320
        Tyr Glu Gln Trp Lys Ala Leu Asn Glu Ile Asp Ala Gly Val Cys Glu
                    325             330             335
        Glu Leu Thr Tyr Glu Glu Ile Arg Asp Thr Tyr Pro Glu Glu Tyr Ala
                    340             345             350
    35  Leu Arg Glu Gln Asp Lys Tyr Tyr Tyr Arg Tyr Pro Thr Gly Glu Ser
                    355             360             365
        Tyr Gln Asp Leu Val Gln Arg Leu Glu Pro Val Ile Met Glu Leu Glu
            370             375             380
        Arg Gln Glu Asn Val Leu Val Ile Cys His Gln Ala Val Leu Arg Cys
    40  385             390             395             400
        Leu Leu Ala Tyr Phe Leu Asp Lys Ser Ala Glu Glu Met Pro Tyr Leu
                    405             410             415
        Lys Cys Pro Leu His Thr Val Leu Lys Leu Thr Pro Val Ala Tyr Gly
                    420             425             430
    45  Cys Arg Val Glu Ser Ile Tyr Leu Asn Val Glu Ser Val Cys Thr His
                    435             440             445
        Arg Glu Arg Ser Glu Asp Ala Lys Lys Gly Pro Asn Pro Leu Met Arg
            450             455             460
        Arg Asn Ser Val Thr Pro Leu Ala Ser Pro Glu Pro Thr Lys Lys Pro
    50  465             470             475             480
        Arg Ile Asn Ser Phe Glu Glu His Val Ala Ser Thr Ser Ala Ala Leu
                    485             490             495
        Pro Ser Cys Leu Pro Pro Glu Val Pro Thr Gln Leu Pro Gly Gln Asn
                    500             505             510
    55  Met Lys Gly Ser Arg Ser Ser Ala Asp Ser Ser Arg Lys His
            515             520             525
```

```
        <210> 609
        <211> 205
    60  <212> PRT
        <213> Homo sapiens

        <400> 609
```

210

```
Asn Ile Ser Cys Asn Leu Leu Asn Ile Val Leu Lys Val Lys Asn Arg
  1           5               10              15
Met Val Val Trp Glu Leu Glu Ala Leu Phe Pro Leu Leu Gln Asn Ala
           20              25              30
Tyr Leu Ser Cys Ile Ile Val Lys Trp Lys Cys His Lys Leu Pro Ile
           35              40              45
Ile His Trp Xaa Pro Leu Tyr Phe Thr Gln Leu Thr Leu Thr Trp Glu
           50              55              60
Ile Pro His Asn His Ser Ile Arg Glu Ala Ser Xaa Ser Pro Gln Gln
 65              70              75              80
Leu Arg Leu Ile Gly Leu Phe Gln Pro Gly Ile Ile Arg Ser Arg Leu
           85              90              95
Pro Gln Ser Gln Lys Gly Glu Glu Ala Xaa Pro Val Trp Ala Pro Gly
          100             105             110
Cys Leu Val Gln Pro Arg Val His Ser Trp Met Pro Arg Ser Pro Xaa
          115             120             125
Trp Val Ser Xaa Glu Cys Ser Ala Leu Gln Gly Ala Gly Leu Val Ala
          130             135             140
Gln Gly Pro Phe Gln Glu Phe His Ser Leu Thr Leu Val Gln Ala Ala
 145             150             155             160
Ala Trp Ala Pro Pro Gly Ala Gly Ser Trp Ala Gly Arg Pro Xaa Trp
          165             170             175
Arg Pro Met Leu Leu Lys Ala Val Asp Ala Arg Leu Phe Trp Trp Val
          180             185             190
Arg Gly Leu Ala Xaa Arg Gly Asp Thr Ile Xaa Val Ser
          195             200             205


          <210> 610
          <211> 199
          <212> PRT
          <213> Homo sapiens


          <400> 610
Val Ile Pro Ser Thr Gly Ile Lys Leu Pro Ser Ser Val Phe Ala Ser
  1           5               10              15
Glu Phe Glu Glu Asp Val Gly Leu Leu Asn Lys Ala Ala Pro Val Ser
           20              25              30
Gly Pro Arg Leu Asp Phe Asp Pro Asp Ile Val Ala Ala Leu Asp Asp
           35              40              45
Asp Phe Asp Phe Asp Asp Pro Asp Asn Leu Leu Glu Asp Asp Phe Ile
           50              55              60
Leu Gln Ala Asn Lys Ala Thr Gly Glu Glu Glu Gly Met Asp Ile Gln
 65              70              75              80
Lys Ser Glu Asn Glu Asp Asp Ser Glu Trp Glu Asp Val Asp Asp Glu
           85              90              95
Lys Gly Asp Ser Asn Asp Asp Tyr Asp Ser Ala Gly Leu Leu Ser Asp
          100             105             110
Glu Asp Cys Met Ser Val Pro Gly Lys Thr His Arg Ala Ile Ala Asp
          115             120             125
His Leu Phe Trp Ser Glu Glu Thr Lys Ser Arg Phe Thr Glu Tyr Ser
          130             135             140
Met Thr Ser Ser Val Met Arg Arg Asn Glu Gln Leu Thr Leu His Asp
 145             150             155             160
Glu Arg Phe Glu Lys Phe Tyr Glu Gln Tyr Asp Asp Asp Glu Ile Gly
          165             170             175
Ala Leu Asp Asn Ala Glu Leu Glu Gly Ser Ile Gln Val Gly Gln Gln
          180             185             190
Ser Leu Thr Gly Ser Phe Glu
          195


          <210> 611
          <211> 117
          <212> PRT
```

211

```
<213> Homo sapiens

<400> 611
Ser Cys Ser Gly Ala Gly Thr Pro Arg Thr Gly Thr Arg Ser Pro Met
1               5                   10                  15
Glu Ala Trp His Ala Gly Arg Gly Asn Arg Pro Thr Pro Pro Ser Ala
            20                  25                  30
Leu Ser Pro Ala Arg Lys Arg Gly Lys Asn Cys Asn Ser Ser Gly Lys
            35                  40                  45
Leu Ser Ser Lys Ser Leu Pro Thr Ser Asp Asp Tyr Glu Leu Gly Ala
        50                  55                  60
Gly Ile Arg Lys Arg His Lys Gly Pro Lys Glu Glu His Asn Ala Leu
65                  70                  75                  80
Ile Gly Thr Gly Lys Ala Arg Glu Arg Asn Gln Thr Trp Asp Glu His
                85                  90                  95
Glu Ala Ser Ser Lys Phe Ile Ser Gln Leu Lys Ile Lys Lys Lys Lys
                100                 105                 110
Met Asp Ser Asp Gln
            115

<210> 612
<211> 128
<212> PRT
<213> Homo sapiens

<400> 612
Ser Leu Leu Ala Ala Gly Ser His Met Leu Arg Glu Val Leu Asp Gly
1               5                   10                  15
Pro Val Val Gly Pro Ala Gln Glu Pro Ala Ala Pro Thr Gly Ala Glu
            20                  25                  30
Ala His Asn Lys Tyr Ser Trp Met Arg Lys Lys Glu Glu Arg Met Tyr
            35                  40                  45
Pro Met Lys Ser Ser Val Glu Asp Met Asp Val Leu Glu Leu Asp Phe
        50                  55                  60
Arg Met Trp Arg Ala Glu Val Gln His Gln Tyr Lys Glu Lys Gln His
65                  70                  75                  80
Glu Leu Val Lys Leu Gln Arg Arg Arg Asp Ser Glu Asp Arg His Glu
                85                  90                  95
Glu Ser His Gly Ser Leu Ala Arg Arg Pro Trp Lys Gln Thr His Ala
                100                 105                 110
Pro Glu Arg Pro Val Ala Arg Pro Gln Glu Gly Glu Glu Leu Gln Gln
        115                 120                 125

<210> 613
<211> 197
<212> PRT
<213> Homo sapiens

<400> 613
Ala Arg Ala Leu Glu Lys Leu Glu Ala Ala Glu Ser Leu Val Leu Glu
1               5                   10                  15
Gln Ser Phe Leu His Gly Ile Thr Leu Leu Ser Glu Ile Ala Glu Leu
            20                  25                  30
Glu Leu Glu Arg Arg Ser Gln Glu Met Gly Gly Ala Glu Arg Ala Leu
        35                  40                  45
Val Ala Arg Pro Ser Leu Glu Ser Leu Leu Ala Ala Gly Ser His Met
        50                  55                  60
Leu Arg Glu Val Leu Asp Gly Pro Val Val Asp Pro Leu Lys Asn Leu
65                  70                  75                  80
Arg Leu Pro Arg Glu Leu Lys Pro Asn Lys Lys Tyr Ser Trp Met Arg
                85                  90                  95
Lys Lys Glu Glu Arg Met Tyr Ala Met Lys Ser Ser Leu Glu Asp Met
                100                 105                 110
```

```
Asp Ala Leu Glu Leu Asp Phe Arg Met Arg Leu Ala Glu Val Gln Arg
        115                 120                 125
Gln Tyr Lys Glu Lys Gln Arg Glu Leu Val Lys Leu Gln Arg Arg Arg
        130                 135                 140
Asp Ser Glu Asp Arg Arg Glu Glu Pro His Arg Ser Leu Ala Arg Arg
145                 150                 155                 160
Gly Pro Gly Arg Pro Arg Lys Arg Thr His Ala Pro Ser Ala Leu Ser
                165                 170                 175
Pro Pro Arg Lys Arg Gly Lys Ser Gly His Ser Ser Gly Lys Leu Ser
                180                 185                 190
Ser Lys Val Ser Cys
        195


        <210> 614
        <211> 184
        <212> PRT
        <213> Homo sapiens


        <400> 614
Leu Lys Met Asn Ser Ile Cys Leu Ile Lys Leu Gly Ile Thr Lys Ile
  1               5                 10                  15
Ala Val Gln Thr Ser Ser His Thr Pro Thr Arg Gln Asn Ser Ile Tyr
        20                  25                  30
Lys Met Phe Xaa Gly Lys Pro Xaa Pro Asn Pro Cys Pro Lys Arg Ala
        35                  40                  45
Arg Thr Lys Pro Gly Val Ser Gly Trp Ala Xaa Asn Val Ser Ala Gly
        50                  55                  60
Val Gly Gly Thr Arg Gly Arg Gly Arg Arg Ala Gly Arg Arg Ala Ser
65                  70                  75                  80
Gly Xaa Lys Arg Arg Xaa Lys Ser Ser His Ile Thr Ala Gln Lys Glu
                85                  90                  95
Pro Ala Gly Asp Ile Ile Thr Met Ile Gln Ser Asn Xaa Ser Lys Asn
        100                 105                 110
Gln Asn His Ser Ala Asp Asn Ser Lys Leu Arg Cys Gln Glu Pro Ile
        115                 120                 125
Trp Gln Pro Ser Cys Xaa His Ser His Gly Pro Phe Thr His His Xaa
        130                 135                 140
Ser Arg Ala Pro Thr Arg Phe Pro Phe Ala Tyr Leu His Ala Phe Phe
145                 150                 155                 160
Ala Arg Lys His Gly Arg Phe Phe Gly Phe Gly Ala Ser Asn Leu Gly
                165                 170                 175
Lys Pro Phe Pro Pro Xaa Ser Cys
                180


        <210> 615
        <211> 188
        <212> PRT
        <213> Homo sapiens


        <400> 615
Ala Arg Ala Glu Val Gln Glu Lys Lys Lys Lys Met Lys Asn Glu Asn
  1               5                 10                  15
Ala Asp Lys Leu Leu Lys Ser Glu Lys Gln Met Lys Lys Ser Glu Lys
        20                  25                  30
Lys Ser Lys Gln Glu Lys Glu Lys Ser Lys Lys Lys Gly Gly Lys
        35                  40                  45
Thr Glu Gln Asp Gly Tyr Gln Lys Pro Thr Asn Lys His Phe Thr Gln
        50                  55                  60
Ser Pro Lys Lys Ser Val Ala Asp Leu Leu Gly Ser Phe Glu Gly Lys
65                  70                  75                  80
Arg Arg Leu Leu Leu Ile Thr Ala Pro Lys Ala Glu Asn Asn Met Tyr
                85                  90                  95
Val Gln Gln Arg Asp Glu Tyr Leu Glu Ser Phe Cys Lys Met Ala Thr
```

213

```
                          100                     105                      110
       Arg Lys Ile Ser Val Ile Thr Ile Phe Gly Pro Val Asn Asn Ser Thr
                          115                     120                      125
       Met Lys Ile Asp His Phe Gln Leu Asp Asn Glu Lys Pro Met Arg Val
  5             130                     135                      140
       Val Asp Asp Glu Asp Leu Val Asp Gln Arg Leu Ile Ser Glu Leu Arg
            145                     150                      155                      160
       Lys Glu Tyr Gly Met Thr Tyr Asn Asp Phe Phe Met Val Leu Thr Asp
                          165                     170                      175
  10   Val Asp Leu Arg Val Lys Gln Tyr Tyr Glu Val Gln
                          180                     185


               <210> 616
               <211> 129
  15           <212> PRT
               <213> Homo sapiens


               <400> 616
       Ala Arg Gly Gly Gly Gly Ala Arg Leu Arg Arg Gly Asp Ala Ser Pro
  20   1               5                       10                       15
       Val Arg Pro Arg Arg Gly Leu His Ala Pro Leu Ala Arg Ser Leu Pro
                    20                      25                       30
       Pro Pro Ala Pro Arg Pro Ala Met Ala Glu Pro Ser Ser Ala Arg Arg
                 35                      40                       45
  25   Pro Val Pro Leu Ile Glu Ser Glu Leu Tyr Phe Leu Ile Ala Arg Tyr
            50                      55                       60
       Leu Ser Ala Gly Pro Cys Arg Arg Ala Ala Gln Val Leu Val Gln Glu
       65                      70                       75                       80
       Leu Glu Gln Tyr Gln Leu Leu Pro Lys Arg Leu Asp Trp Glu Gly Asn
  30                         85                       90                       95
       Glu His Asn Arg Ser Tyr Xaa Glu Leu Val Leu Ser Asn Lys His Val
                    100                     105                      110
       Ala Pro Asp His Leu Leu Gln Ile Cys Glu Arg Ile Gly Ser Tyr Val
                 115                     120                      125
  35   Gly


               <210> 617
               <211> 215
  40           <212> PRT
               <213> Homo sapiens


               <400> 617
       Arg Arg Gly Arg Pro Gly Pro Gly Gly Ala Ala Leu His Ala Gly His
  45   1               5                       10                       15
       Val Gly Val Gly Pro Leu Arg Pro Pro Ala Leu His Gly Pro Gln Ala
                    20                      25                       30
       Gly Pro Pro Gly Ala Gly Ala Leu Pro Ala Pro Gly Pro Gln Ile Arg
                 35                      40                       45
  50   Arg Ser Gly Ala Glu Pro Arg Gly Gln Ala Val Arg Val Pro Arg Arg
            50                      55                       60
       Gln Thr Ala Gly Gly Ala Val Trp Gly Arg Arg His Arg Leu Leu Leu
       65                      70                       75                       80
       Gly Gln Ala Gly Arg Asp Thr Val Trp Glu Asp Ala Arg Glu Pro Leu
  55                         85                       90                       95
       Ala Pro Val Ala Leu Pro Gly Gly Arg Asn Pro Val Asn Tyr Gly Arg
                    100                     105                      110
       Pro Tyr Arg Leu Ser Cys Val Glu Xaa Phe Ala Ala Thr Phe Leu His
                 115                     120                      125
       Xaa Arg Leu Xaa Gln Thr Leu Leu Ser Phe Cys Cys Gly Lys Phe Lys
  60          130                     135                      140
       Trp Gly Lys Gly Leu Leu Gly Pro Glu Xaa Ala Lys Xaa Leu Asp Lys
            145                     150                      155                      160
```

214

```
        Xaa Pro Val Leu Xaa Xaa Pro Arg Xaa Lys Cys Phe Lys Ala Xaa Gln
                    165             170                 175
        Xaa Phe Leu Gly Lys Leu Pro Met Glu Lys Pro Pro Arg Xaa Glu Glu
                    180             185             190
5       Asn Arg Ile Pro Xaa Asn Val Gly Phe Lys Gly Lys Lys Ile Leu Glu
                    195             200             205
        Asn Pro Lys Arg Xaa Phe Trp
                    210             215


10              <210> 618
                <211> 137
                <212> PRT
                <213> Homo sapiens


15              <400> 618
        Pro Arg His Leu Pro Thr Arg Ser Leu Glu Ala Phe Ala Glu Glu Val
        1               5               10              15
        Gly Ala Ala Leu Gln Ala Ser Val Glu Pro Gly Ala Ala Asp Gly Glu
                    20              25              30
20      Gly Gly Pro Gly Pro Ala Ala Leu Pro Cys Thr Leu Ala Met Trp Glu
                    35              40              45
        Leu Gly His Cys Asp Pro Arg Arg Cys Thr Gly Arg Lys Leu Ala Arg
                    50              55              60
        Leu Gly Leu Val Arg Cys Leu Arg Leu Gly His Arg Phe Gly Gly Leu
25      65              70              75              80
        Val Leu Ser Pro Val Gly Lys Gln Tyr Ala Ser Pro Ala Asp Arg Gln
                        85              90              95
        Leu Val Ala Gln Ser Gly Val Ala Val Ile Asp Cys Ser Trp Ala Arg
                    100             105             110
30      Leu Asp Glu Thr Pro Phe Gly Lys Met Arg Gly Ser His Leu Arg Leu
                    115             120             125
        Leu Pro Tyr Leu Val Ala Ala Thr Pro
                    130             135


35              <210> 619
                <211> 227
                <212> PRT
                <213> Homo sapiens


40              <400> 619
        Gly Thr Ser Ile Tyr Ser Gly Arg Leu Leu Ser Arg Ala Asn Thr Glu
        1               5               10              15
        Lys Ser Tyr Gly Ile Asp Glu Asn Gly Arg Asp Glu Asn Thr Met Lys
                    20              25              30
45      Asn Ile Phe Ser Lys Lys Arg Lys Leu Glu Val Ala Cys Ser Asp Cys
                    35              40              45
        Glu Val Glu Val Leu Pro Leu Gly Leu Glu Thr His Pro Arg Thr Ala
                50              55              60
        Lys Thr Glu Lys Cys Pro Pro Lys Phe Ser Asn Asn Pro Lys Glu Leu
50      65              70              75              80
        Thr Met Glu Thr Lys Tyr Asp Asn Ile Ser Arg Ile Gln Tyr His Ser
                        85              90              95
        Val Ile Arg Asp Pro Glu Ser Lys Thr Ala Ile Phe Gln His Asn Gly
                    100             105             110
55      Lys Lys Met Glu Phe Val Ser Ser Glu Ser Val Thr Pro Glu Asp Asn
                    115             120             125
        Asp Gly Phe Lys Pro Pro Arg Glu His Leu Asn Ser Lys Thr Lys Gly
                    130             135             140
        Ala Gln Lys Asp Ser Ser Ser Asn His Val Asp Glu Phe Glu Asp Asn
60      145             150             155             160
        Leu Leu Ile Glu Ser Asp Val Ile Asp Ile Thr Lys Tyr Arg Glu Glu
                    165             170             175
        Thr Pro Pro Arg Ser Arg Cys Asn Gln Ala Thr Thr Leu Asp Asn Gln
```

215

```
                      180                  185                  190
          Asn Ile Lys Lys Ala Ile Glu Val Gln Ile Gln Lys Pro Pro Arg Gly
                  195                  200                  205
   5      Thr Ile Tyr Ser Met Ser Lys Thr Ser Xaa Tyr Phe Val Met Lys Lys
                  210                  215                  220
          Leu Leu Lys
          225


               <210> 620
  10           <211> 227
               <212> PRT
               <213> Homo sapiens


               <400> 620
  15      Ile Pro Xaa Gln Pro Phe Phe Lys Pro Asn Gly Lys Lys Met Glu Phe
          1               5                  10                  15
          Val Ser Ser Glu Ser Val Thr Pro Glu Asp Asn Asp Gly Phe Lys Pro
                  20                  25                  30
  20      Pro Arg Glu His Leu Asn Ser Lys Thr Lys Gly Ala Gln Lys Asp Ser
                  35                  40                  45
          Ser Ser Asn His Val Asp Glu Phe Glu Asp Asn Leu Leu Ile Glu Ser
               50                  55                  60
          Asp Val Ile Asp Ile Thr Lys Tyr Arg Glu Glu Thr Pro Pro Arg Ser
          65                  70                  75                 ·80
  25      Arg Cys Asn Gln Ala Thr Thr Leu Asp Asn Gln Asn Ile Lys Lys Ala
                      85                  90                  95
          Ile Glu Val Gln Ile Gln Lys Pro Gln Glu Gly Arg Ser Thr Ala Cys
                      100                  105                  110
          Gln Arg Gln Gln Val Phe Cys Asp Glu Glu Leu Leu Ser Glu Thr Lys
  30          115                  120                  125
          Asn Thr Ser Ser Asp Ser Leu Thr Lys Phe Asn Lys Gly Asn Val Phe
              130                  135                  140
          Leu Leu Asp Ala Thr Lys Glu Gly Asn Val Gly Arg Phe Leu Asn His
          145                  150                  155                  160
  35      Ser Cys Cys Pro Asn Leu Leu Val Gln Asn Val Phe Val Glu Thr His
                      165                  170                  175
          Asn Arg Asn Phe Pro Leu Val Ala Phe Phe Thr Asn Arg Tyr Val Lys
                      180  ·              185                  190
          Ala Arg Thr Glu ·Leu Thr Trp Asp Tyr Gly Tyr Glu Ala Gly Thr Val
  40              195                  200                  205
          Pro Glu Lys Glu Ile Phe Cys Gln Cys Gly Val Asn Lys Cys Arg Lys
              210                  215                  220
          Lys Ile Leu
          225
  45
               <210> 621
               <211> 204
               <212> PRT
               <213> Homo sapiens
  50
               <400> 621
          Leu Asn Thr Leu Ser Thr Pro Glu Glu Lys Leu Ala Ala Leu Cys Lys
          1               5                  10                  15
          Lys Tyr Ala Asp Leu Leu Glu Glu Ser Arg Ser Val Gln Lys Gln Met
  55              20                  25                  30
          Lys Ile Leu Gln Lys Lys Gln Ala Gln Ile Val Lys Glu Lys Val His
                  35                  40                  45
          Leu Gln Ser Glu His Ser Lys Ala Ile Leu Ala Arg Ser Lys Leu Glu
              50                  55                  60
  60      Ser Leu Cys Arg Glu Leu Gln Arg His Asn Lys Thr Leu Lys Glu Glu
          65                  70                  75                  80
          Asn Met Gln Gln Ala Arg Glu Glu Glu Glu Arg Arg Lys Glu Ala Thr
                      85                  90                  95
```

216

```
Ala His Phe Gln Ile Thr Leu Asn Glu Ile Gln Ala Gln Leu Glu Gln
            100                 105                 110
His Asp Ile His Asn Ala Lys Leu Arg Gln Glu Asn Ile Glu Leu Gly
            115                 120                 125
Glu Lys Leu Lys Lys Leu Ile Glu Gln Tyr Ala Leu Arg Glu Glu His
            130                 135                 140
Ile Asp Lys Val Phe Lys His Lys Glu Leu Gln Gln Gln Leu Val Asp
145                 150                 155                 160
Ala Lys Leu Gln Gln Thr Thr Gln Leu Ile Lys Glu Ala Asp Glu Lys
                    165                 170                 175
His Gln Arg Glu Arg Glu Phe Leu Leu Lys Glu Ala Thr Glu Ser Arg
                    180                 185                 190
His Lys Tyr Glu Gln Met Lys Gln Gln Glu Val His
            195                 200
```

```
        <210> 622
        <211> 187
        <212> PRT
        <213> Homo sapiens

        <400> 622
Glu Leu Gly Pro Glu Thr Arg Gly Arg Ala Val Gly Pro Arg Asn Glu
  1               5                  10                  15
Ala Lys Met Leu Glu Gly Asp Leu Val Ser Lys Met Leu Arg Ala Val
            20                  25                  30
Leu Gln Ser His Lys Asn Gly Val Ala Leu Pro Arg Leu Gln Gly Glu
            35                  40                  45
Tyr Arg Ser Leu Thr Gly Asp Trp Ile Pro Phe Lys Gln Leu Gly Phe
        50              55                  60
Pro Thr Leu Glu Ala Tyr Leu Arg Ser Val Pro Ala Val Val Arg Ile
65                  70                  75                  80
Glu Thr Ser Arg Ser Gly Glu Ile Thr Cys Tyr Ala Met Ala Cys Thr
                85                  90                  95
Glu Thr Ala Arg Ile Ala Gln Leu Val Ala Arg Gln Arg Ser Ser Lys
            100                 105                 110
Arg Lys Thr Gly Arg Gln Val Asn Cys Gln Met Arg Val Lys Lys Thr
            115                 120                 125
Met Pro Phe Phe Leu Glu Gly Lys Pro Lys Ala Thr Leu Arg Gln Pro
            130                 135                 140
Gly Phe Ala Ser Asn Phe Ser Val Gly Lys Lys Pro Asn Pro Ala Pro
145                 150                 155                 160
Leu Arg Asp Lys Gly Asn Ser Ala Gly Val Lys Pro Asp Ala Glu Met
                    165                 170                 175
Ser Pro Tyr Met Leu His Thr Thr Leu Trp Lys
            180                 185
```

```
        <210> 623
        <211> 141
        <212> PRT
        <213> Homo sapiens

        <400> 623
Gln Trp Arg Lys Thr Lys Cys Met Leu Gln Lys Trp Lys Ile Ser Gly
  1               5                  10                  15
Thr Gly Cys Phe Leu Lys Gly Ile Leu Thr Asn Gly Leu Val Ser Val
            20                  25                  30
Tyr Glu Leu Asp Tyr Gly Lys His Glu Leu Val Asn Ile Arg Lys Val
            35                  40                  45
Gln Pro Leu Val Asp Met Phe Arg Lys Leu Pro Phe Gln Ala Val Thr
        50              55                  60
Ala Gln Leu Ala Gly Val Lys Cys Asn Gln Trp Ser Glu Glu Ala Ser
65                  70                  75                  80
Met Val Phe Arg Asn His Val Glu Lys Lys Pro Leu Val Ala Leu Val
```

217

```
                        85                        90                        95
    Gln Thr Val Ile Glu Asn Ala Asn Pro Trp Asp Arg Lys Val Val Val
                        100                       105                       110
    Tyr Leu Val Asp Thr Ser Leu Pro Asp Thr Asp Thr Trp Ile His Asp
                        115                       120                       125
    Phe Met Ser Glu Tyr Leu Ile Glu Leu Ser Lys Val Asn
                        130                       135                       140


        <210> 624
        <211> 201
        <212> PRT
        <213> Homo sapiens


        <400> 624
    Met Val Ser Gly Asn Val Arg Val Met Ser Glu Met Leu Thr Glu Leu
     1               5                        10                        15
    Val Pro Thr Gln Ala Glu Pro Ala Asp Leu Glu Leu Leu Gln Glu Leu
                        20                        25                        30
    Asn Arg Thr Cys Arg Ala Met Gln Gln Arg Val Leu Glu Leu Ile Pro
                        35                        40                        45
    Gln Ile Ala Asn Glu Gln Leu Thr Glu Glu Leu Leu Ile Val Asn Asp
                        50                        55                        60
    Asn Leu Asn Asn Val Phe Leu Arg His Glu Arg Phe Glu Arg Phe Arg
    65                        70                        75                        80
    Thr Gly Gln Thr Thr Lys Ala Pro Ser Glu Ala Glu Pro Ala Ala Asp
                        85                        90                        95
    Leu Ile Asp Met Gly Pro Asp Pro Ala Ala Thr Gly Asn Leu Ser Ser
                        100                       105                       110
    Gln Leu Ala Gly Met Asn Leu Gly Ser Ser Ser Val Arg Ala Gly Leu
                        115                       120                       125
    Gln Ser Leu Glu Ala Ser Gly Arg Leu Glu Asp Glu Phe Asp Met Phe
                        130                       135                       140
    Ala Leu Thr Arg Gly Ser Ser Leu Ala Asp Gln Arg Lys Glu Val Lys
    145                       150                       155                       160
    Tyr Glu Ala Pro Gln Ala Thr Asp Gly Leu Ala Gly Ala Leu Asp Ala
                        165                       170                       175
    Arg Gln Gln Ser Thr Gly Arg Asp Pro Ser His Pro Gly Leu Pro His
                        180                       185                       190
    Gly Gly His Xaa Ala Val Ala Val His
                        195                       200


        <210> 625
        <211> 244
        <212> PRT
        <213> Homo sapiens


        <400> 625
    Glu Ala Arg Ser Ala Ala Gln Val Ala Leu Cys Ile Gln Gln Leu Gln
     1               5                        10                        15
    Lys Ser Ile Ala Trp Glu Lys Ser Ile Met Lys Val Tyr Cys Gln Ile
                        20                        25                        30
    Cys Arg Lys Gly Asp Asn Glu Glu Leu Leu Leu Leu Cys Asp Gly Cys
                        35                        40                        45
    Asp Lys Gly Cys His Thr Tyr Cys His Arg Pro Lys Ile Thr Thr Ile
    55          50                        55                        60
    Pro Asp Gly Asp Trp Phe Cys Pro Ala Cys Ile Ala Lys Ala Ser Gly
    65                        70                        75                        80
    Gln Thr Leu Lys Ile Lys Lys Leu His Val Lys Gly Lys Lys Thr Asn
                        85                        90                        95
    Glu Ser Lys Lys Gly Lys Lys Val Thr Leu Thr Gly Asp Thr Glu Asp
                        100                       105                       110
    Glu Asp Ser Ala Ser Thr Ser Ser Ser Leu Lys Arg Gly Asn Lys Asp
                        115                       120                       125
```

```
       Leu Lys Lys Arg Lys Met Glu Glu Asn Thr Ser Ile Asn Leu Ser Lys
           130             135             140
       Gln Glu Ser Phe Thr Ser Val Lys Lys Pro Lys Arg Asp Asp Ser Lys
           145             150             155             160
  5    Asp Leu Ala Leu Cys Ser Met Ile Leu Thr Glu Met Glu Thr His Glu
                   165             170             175
       Asp Ala Trp Pro Phe Leu Leu Pro Val Asn Leu Lys Leu Val Pro Gly
                   180             185             190
       Tyr Lys Lys Val Ile Lys Lys Pro Met Asp Phe Ser Thr Ile Arg Glu
  10           195             200             205
       Lys Leu Ser Ser Gly Gln Tyr Pro Asn Leu Glu Thr Phe Ala Leu Asp
           210             215             220
       Val Arg Leu Val Phe Asp Thr Val Lys His Leu Met Glu Asp Asp Ser
           225             230             235             240
  15   Asp Ile Gly Arg
```

```
           <210> 626
           <211> 208
  20       <212> PRT
           <213> Homo sapiens


           <400> 626
       Ala Arg Gly Lys Pro Ser Leu Val Arg Glu Thr Ser Arg Ile Thr Val
  25   1               5               10              15
       Leu Glu Ala Leu Arg His Pro Ile Gln Val Ser Arg Arg Leu Leu Ser
                   20              25              30
       Arg Pro Gln Asp Ala Leu Glu Gly Val Val Leu Ser Pro Ser Leu Glu
                   35              40              45
  30   Ala Arg Val Arg Asp Ile Ala Ile Ala Thr Arg Asn Thr Lys Lys Asn
           50              55              60
       Arg Ser Leu Tyr Arg Asn Ile Leu Met Tyr Gly Pro Pro Gly Thr Gly
       65              70              75              80
       Lys Thr Leu Phe Ala Lys Lys Leu Ala Leu His Ser Gly Met Asp Tyr
  35           85              90              95
       Ala Ile Met Thr Gly Gly Asp Val Ala Pro Met Gly Arg Glu Gly Val
                   100             105             110
       Thr Ala Met His Lys Leu Phe Asp Trp Ala Asn Thr Ser Arg Arg Gly
                   115             120             125
  40   Leu Leu Leu Phe Val Asp Glu Ala Asp Ala Phe Leu Arg Lys Arg Ala
           130             135             140
       Thr Glu Lys Ile Ser Glu Asp Leu Arg Ala Thr Leu Asn Ala Phe Leu
           145             150             155             160
       Tyr Arg Thr Gly Gln His Ser Asn Lys Phe Met Leu Val Leu Ala Ser
  45           165             170             175
       Asn Gln Pro Glu Gln Phe Asp Trp Ala Ile Asn Asp Arg Xaa Asn Glu
                   180             185             190
       Met Val His Phe Asp Leu Xaa Arg Ala Xaa Arg Asn Gly Ser Ala Trp
  50           195             200             205
```

```
           <210> 627
           <211> 230
           <212> PRT
           <213> Homo sapiens
  55
           <400> 627
       Val Asn Arg Pro Gln Leu Gln Pro Gln Ala Trp Thr Gly Gln Leu Thr
  60   1               5               10              15
       Val Arg Pro Xaa Thr Pro Pro Pro Gly Ser Leu Leu Pro Pro Xaa Ser
                   20              25              30
       Gly Ser Pro Val Cys Glu Xaa Ser Gly His Ala Gly His Arg Gly Lys
                   35              40              45
       Gln Gly Ser Gly Cys Pro Thr Trp Val Trp Pro Trp Gln Ala Pro Pro
```

```
              50                    55                        60
         His Leu Ala Leu Leu Trp Glu Pro Arg Thr Lys Thr Ser Pro Ala Trp
         65                    70                    75                    80
         Leu Leu Leu Pro Arg Gly Xaa Xaa Gln His Pro Pro Xaa Gln Xaa Pro
5                             85                    90                    95
         Gly Gln Gly Leu Gly Cys Lys Ala Ser Pro Ser Pro Cys Glu Pro Xaa
                         100                   105                   110
         Gly Lys Cys Ile Ser Gln Xaa Cys Leu Glu Gly Gln Glu Gly Gly Leu
                     115                   120                   125
10       Pro Leu Pro Ser Gln Xaa Leu Gln Gln Gly Val Pro Trp Gly Ala Lys
                     130                   135                   140
         Arg Pro Thr Ala Thr Thr Arg His Pro Gly Gly Gln Arg Pro Trp Ala
         145                   150                   155                   160
         Gln Pro Asn Pro His Pro Gly Ala Xaa Pro Lys Cys Ala Gly Ala Gly
15                       165                   170                   175
         Lys Ala Gly Val Gly Xaa Gly Pro Xaa Pro Gly Phe Arg Glu Leu Trp
                     180                   185                   190
         Ile Ser Leu Xaa Thr Ser Xaa Xaa Gly Gly Leu Arg Xaa His Ala Gln
                     195                   200                   205
20       Ala Leu Ser Leu Xaa Pro Ala Gln Ser Ser Xaa Gly Ala Xaa Gly Gln
                     210                   215                   220
         Tyr Phe Ser Pro Gly Cys
         225                   230


25            <210> 628
              <211> 215
              <212> PRT
              <213> Homo sapiens


30            <400> 628
         Gln Cys Gly Leu Xaa His Pro Arg Gln Val Pro Ser Ser Leu Xaa Xaa
          1                    5                    10                   15
         Gln Gly His Gln Cys Val Lys Xaa Arg Gly Met Pro Ala Thr Gly Gly
                         20              .        25                   30
35       Ser Arg Val Gln Ala Ala Pro Pro Gly Ser Gly Pro Gly Arg Arg Pro
                     35                    40                    45
         Leu Thr Trp Leu Cys Cys Gly Ser Arg Glu Gln Arg His His Leu Pro
                 50                    55                    60
         Gly Ser Cys Cys Pro Gly Gly Xaa Xaa Ser Thr His Pro Xaa Xaa Gly
40       65                    70                    75                    80
         Leu Gly Arg Gly Trp Gly Ala Lys Pro His Pro Pro Pro Val Ser Xaa
                         85                    90                    95
         Thr Glu Asn Ala Phe Pro Xaa Ser Val Ser Arg Gly Arg Lys Glu Ala
                     100   .               105                   110
45       Cys Pro Ser Leu Ala Xaa Ala Tyr Asn Arg Gly Cys Pro Gly Gly Gln
                     115                   120                   125
         Asn Asp Arg Pro Pro Pro Gln Asp Ile Leu Gly Asp Lys Gly Pro Gly
                     130                   135                   140
         His Ser Pro Ile Pro Ile Gln Glu Xaa Ile Leu Asn Val Gln Gly Pro
50       145                   150                   155                   160
         Ala Arg Gln Gly Trp Xaa Gly Val Arg Xaa Gln Ala Ser Val Ser Cys
                         165                   170                   175
         Gly Ser Pro Xaa Gly Leu Xaa Asp Xaa Glu Gly Phe Xaa Pro Thr Pro
                     180                   185                   190
55       Arg Pro Phe Arg Xaa Xaa Gln His Asn Leu Leu Xaa Val Leu Xaa Asp
                     195                   200                   205
         Ser Ile Phe His Pro Gly Val
                     210                   215


60            <210> 629
              <211> 236
              <212> PRT
              <213> Homo sapiens
```

```
        <400> 629
   Ala Arg Ala Glu Val Glu Lys Gln Thr Ser Leu Thr Pro Arg Glu Leu
   1               5                   10                  15
5  Glu Ile Arg Arg Arg Glu Asp Glu Tyr Arg Phe Thr Lys Leu Leu Gln
               20                  25                  30
   Ile Ala Gly Ile Ser Pro His Gly Asn Ala Leu Gly Ala Ser Met Gln
               35                  40                  45
   Gln Gln Val Asn Gln Gln Ile Pro Gln Glu Lys Arg Gly Gly Glu Val
10      50                  55                  60
   Leu Asp Ser Ser His Asp Asp Ile Lys Leu Glu Lys Ser Asn Ile Leu
   65                  70                  75                  80
   Leu Leu Gly Pro Thr Gly Ser Gly Lys Thr Leu Leu Ala Gln Thr Leu
               85                  90                  95
15 Ala Lys Cys Leu Asp Val Pro Phe Ala Ile Cys Asp Cys Thr Thr Leu
               100                 105                 110
   Thr Gln Ala Gly Tyr Val Gly Glu Asp Ile Glu Ser Val Ile Ala Lys
               115                 120                 125
   Leu Leu Gln Asp Ala Asn Tyr Asn Val Glu Lys Ala Gln Gln Gly Ile
20      130                 135                 140
   Val Phe Leu Asp Glu Val Asp Lys Ile Gly Ser Val Pro Gly Ile His
   145                 150                 155                 160
   Gln Leu Arg Asp Val Gly Gly Glu Gly Val Gln Gln Gly Leu Leu Lys
               165                 170                 175
25 Leu Leu Glu Gly Thr Ile Val Asn Val Pro Glu Lys Asn Ser Arg Lys
               180                 185                 190
   Leu Arg Gly Glu Thr Val Gln Val Asp Thr Thr Asn Ile Leu Phe Val
               195                 200                 205
   Ala Ser Gly Ala Phe Asn Gly Phe Arg Gln Asn His Gln Xaa Gly Gly
30      210                 215                 220
   Lys Asn Glu Lys Tyr Leu Gly Phe Xaa Thr Pro Ile
   225                 230                 235


        <210> 630
35      <211> 285
        <212> PRT
        <213> Homo sapiens


        <400> 630
40 Ser Arg Ala Cys Arg Ser Thr Leu Val Asp Pro Lys Glu Asn Met Asp
   1               5                   10                  15
   Thr Ser Asn Thr Ser Ile Ser Lys Met Lys Arg Ser Arg Pro Thr Ser
               20                  25                  30
   Glu Gly Ser Asp Ile Glu Ser Thr Glu Pro Gln Lys Gln Cys Ser Lys
45             35                  40                  45
   Lys Lys Lys Lys Arg Asp Arg Val Glu Ala Ser Ser Leu Pro Glu Val
       50                  55                  60
   Arg Thr Gly Lys Arg Lys Arg Ser Ser Ser Glu Asp Ala Glu Ser Leu
   65                  70                  75                  80
50 Ala Pro Arg Ser Lys Val Lys Lys Ile Ile Gln Lys Asp Ile Ile Lys
               85                  90                  95
   Glu Ala Ser Glu Ala Ser Lys Glu Asn Arg Asp Ile Glu Ile Ser Thr
               100                 105                 110
   Glu Glu Glu Lys Asp Thr Gly Asp Leu Lys Asp Ser Ser Leu Leu Lys
55      115                 120                 125
   Thr Lys Arg Lys His Lys Lys Lys His Lys Glu Arg His Lys Met Gly
       130                 135                 140
   Glu Glu Val Ile Pro Leu Arg Val Leu Ser Lys Ser Glu Trp Met Asp
   145                 150                 155                 160
60 Leu Lys Lys Glu Tyr Leu Ala Leu Gln Lys Ala Ser Met Ala Ser Leu
               165                 170                 175
   Lys Lys Thr Ile Ser Gln Xaa Lys Ser Glu Ser Glu Met Glu Thr Asp
               180                 185                 190
```

```
        Ser Gly Val Pro Gln Asn Thr Gly Met Lys Asn Glu Lys Thr Ala Asn
                195             200             205
        Arg Glu Glu Cys Arg Thr Gln Glu Lys Val Asn Ala Thr Gly Pro Gln
                210             215             220
    5   Phe Val Ser Gly Val Ile Val Lys Ile Ile Ser Thr Glu Pro Leu Leu
        225             230             235             240
        Ala Gly Asn Lys Ser Gly Ile Phe Gly Ser Asn Leu Arg Lys Phe Phe
                        245             250             255
        Tyr Val Asp Leu Leu Glu Xaa Glu Pro Xaa Trp Pro Ala Arg Leu Lys
    10              260             265             270
        Thr Xaa Glu Asp Ala Gln Xaa Val Ile Asn Ala Phe Pro
                275             280             285


            <210> 631
    15      <211> 593
            <212> PRT
            <213> Homo sapiens


            <400> 631
    20  Leu Asp Met Ala Pro Glu Ile Asn Leu Pro Gly Pro Met Ser Leu Ile
        1           5               10              15
        Asp Asn Thr Lys Gly Gln Leu Val Val Asn Pro Glu Ala Leu Lys Ile
                20              25              30
        Leu Ser Ala Ile Thr Gln Pro Val Val Val Val Ala Ile Val Gly Leu
    25          35              40              45
        Tyr Arg Thr Gly Lys Ser Tyr Leu Met Asn Lys Leu Ala Gly Lys Lys
                50              55              60
        Asn Gly Phe Ser Leu Gly Ser Thr Val Lys Ser His Thr Lys Gly Ile
        65              70              75              80
    30  Trp Met Trp Cys Val Pro His Pro Lys Lys Pro Glu His Thr Leu Val
                        85              90              95
        Leu Leu Asp Thr Glu Gly Leu Gly Asp Ile Glu Lys Gly Asp Asn Glu
                100             105             110
        Asn Asp Ser Trp Ile Phe Ala Leu Ala Ile Leu Leu Ser Ser Thr Phe
    35          115             120             125
        Val Tyr Asn Ser Met Gly Thr Ile Asn Gln Gln Ala Met Asp Gln Leu
                130             135             140
        His Tyr Val Thr Glu Leu Thr Asp Arg Ile Lys Ala Asn Ser Ser Pro
        145             150             155             160
    40  Gly Asn Asn Ser Val Asp Asp Ser Ala Asp Phe Val Ser Phe Phe Pro
                        165             170             175
        Ala Phe Val Trp Thr Leu Arg Asp Phe Thr Leu Glu Leu Glu Val Asp
                180             185             190
        Gly Glu Pro Ile Thr Ala Asp Asp Tyr Leu Glu Leu Ser Leu Lys Leu
    45          195             200             205
        Arg Lys Gly Thr Asp Lys Lys Ser Lys Ser Phe Asn Asp Pro Arg Leu
                210             215             220
        Cys Ile Arg Lys Phe Phe Pro Lys Arg Lys Cys Phe Val Phe Asp Trp
        225             230             235             240
    50  Pro Ala Pro Lys Lys Tyr Leu Ala His Leu Glu Gln Leu Lys Glu Glu
                        245             250             255
        Glu Leu Asn Pro Asp Phe Ile Glu Gln Val Ala Glu Phe Cys Ser Tyr
                260             265             270
        Ile Leu Ser His Ser Asn Val Lys Thr Leu Ser Gly Gly Ile Ala Val
    55          275             280             285
        Asn Gly Pro Arg Leu Glu Ser Leu Val Leu Thr Tyr Val Asn Ala Ile
                290             295             300
        Ser Ser Gly Asp Leu Pro Cys Met Glu Asn Ala Val Leu Ala Leu Ala
        305             310             315             320
    60  Gln Ile Glu Asn Ser Ala Ala Val Glu Lys Ala Ile Ala His Tyr Glu
                        325             330             335
        Gln Gln Met Gly Gln Lys Val Gln Leu Pro Thr Glu Thr Leu Gln Glu
                340             345             350
```

232

```
        Leu Leu Asp Leu His Arg Asp Ser Glu Arg Glu Ala Ile Glu Val Phe
                355                 360                 365
        Met Lys Asn Ser Phe Lys Asp Val Asp Gln Met Phe Gln Arg Lys Leu
                370                 375                 380
  5     Gly Ala Gln Leu Glu Ala Arg Arg Asp Asp Phe Cys Lys Gln Asn Ser
        385                 390                 395                 400
        Lys Ala Ser Ser Asp Cys Cys Met Ala Leu Leu Gln Asp Ile Phe Gly
                        405                 410                 415
        Pro Leu Glu Glu Asp Val Lys Gln Gly Thr Phe Ser Lys Pro Gly Gly
  10                    420                 425                 430
        Tyr Arg Leu Phe Thr Gln Lys Leu Gln Glu Leu Lys Asn Lys Tyr Tyr
                435                 440                 445
        Gln Val Pro Arg Lys Gly Ile Gln Ala Lys Glu Val Leu Lys Lys Tyr
                450                 455                 460
  15    Leu Glu Ser Lys Glu Asp Val Ala Asp Ala Leu Leu Gln Thr Asp Gln
        465                 470                 475                 480
        Ser Leu Ser Glu Lys Glu Lys Ala Ile Glu Val Glu Arg Ile Lys Ala
                        485                 490                 495
        Glu Ser Ala Glu Ala Ala Lys Lys Met Leu Glu Glu Ile Gln Lys Lys
  20                    500                 505                 510
        Asn Glu Glu Met Met Glu Gln Lys Glu Lys Ser Tyr Gln Glu His Val
                515                 520                 525
        Lys Gln Leu Thr Glu Lys Met Glu Arg Asp Arg Ala Gln Leu Met Ala
                530                 535                 540
  25    Glu Gln Glu Lys Thr Leu Ala Leu Lys Leu Gln Glu Gln Glu Arg Leu
        545                 550                 555                 560
        Leu Lys Glu Gly Phe Glu Asn Glu Ser Lys Arg Leu Gln Lys Asp Ile
                        565                 570                 575
        Trp Asp Ile Gln Met Arg Ser Lys Ser Leu Glu Pro Ile Cys Asn Ile
  30                    580                 585                 590
        Leu
```

```
  35          <210> 632
              <211> 191
              <212> PRT
              <213> Homo sapiens

              <400> 632
  40    Arg Arg Pro Ala Ala Gly Leu Arg Asp Xaa Val Xaa Ser Ala Pro Arg
        1                   5                   10                  15
        Gly Met Ala Ser Glu Gly Pro Xaa Glu Pro Glu Ser Glu Gly Ile Lys
                        20                  25                  30
        Leu Ser Gly Ile Cys Gln Thr Ile Cys Pro Gln Ile Cys Arg Ala Gln
  45                36                  40                  45
        Cys Gly Met Val Arg Val Leu Arg Ser Met Cys Leu Pro Gln Leu Cys
                50                  55                  60
        Ser His Ile Leu Ser Val Cys Ser Gly Thr Thr Ser Asp Arg Asn Xaa
        65                  70                  75                  80
  50    Tyr Ser Val Pro Gly Ser Gln Tyr Leu Tyr Asn Gln Pro Ser Cys Tyr
                        85                  90                  95
        Arg Gly Phe Gln Thr Xaa Lys His Arg Asn Glu Asn Thr Cys Pro Leu
                        100                 105                 110
        Pro Gln Glu Met Lys Ala Leu Phe Lys Lys Lys Thr Xaa Asp Glu Lys
  55            115                 120                 125
        Lys Thr Tyr Asp Gln Gln Lys Phe Asp Ser Glu Arg Ala Asp Gly Thr
                130                 135                 140
        Ile Ser Ser Glu Ile Lys Ser Ala Arg Gly Ser His His Leu Ser Ile
        145                 150                 155                 160
  60    Tyr Ala Glu Asn Ser Leu Lys Ser Asp Gly Tyr His Lys Arg Thr Asp
                        165                 170                 175
        Arg Lys Ser Arg Ile Ile Cys Lys Lys Trp Ile Tyr Leu Gln Thr
                180                 185                 190
```

```
<210> 633
<211> 149
<212> PRT
<213> Homo sapiens


<400> 633
Leu Gln Val Cys Leu Pro Ala Gly Gly Pro Cys Xaa Val Cys Pro Gln
1               5               10              15
Lys Val Met Xaa Leu Leu Pro Ile Phe Xaa Leu Xaa Lys Met Xaa Pro
            20              25              30
Pro Val Xaa Arg Ala Val Val Thr Ser Pro Trp Xaa Gly Phe Thr Ser
        35              40              45
Leu Leu Xaa Xaa Xaa Asn Phe Gln Thr Asn Xaa Xaa Leu Gly Asn Pro
    50              55              60
Pro Gly Gly Leu Glu Lys Pro Xaa Gln Val Ala Val Pro Pro Pro Pro
65              70              75              80
Leu Pro Phe Xaa Ala Xaa Gly Glu Pro Xaa Pro Ser Ile Phe Trp Ala
            85              90              95
Pro Phe Xaa Trp Gly Asn Xaa Val Gly Gly Leu Phe Xaa Ser Pro Leu
        100             105             110
Lys Lys Xaa Gly Phe Leu Glu Xaa Pro Xaa Ile Xaa Xaa Xaa Pro Leu
        115             120             125
Xaa Phe Leu Asp Gly Pro Pro Lys Phe Phe Phe Gln Xaa Phe Phe Gly
    130             135             140
Pro Phe Phe Lys Xaa
145


<210> 634
<211> 124
<212> PRT
<213> Homo sapiens


<400> 634
Val Asn Ser Thr Leu Thr Ile Glu Glu Phe His Ser Lys Leu Gln Glu
1               5               10              15
Ala Thr Asn Phe Pro Leu Arg Pro Phe Val Ile Pro Phe Leu Lys Ala
            20              25              30
Asn Leu Pro Leu Leu Gln Arg Glu Leu Leu His Cys Ala Arg Leu Ala
    35              40              45
Lys Gln Asn Pro Ala Gln Tyr Leu Ala Gln His Glu Gln Leu Leu Leu
    50              55              60
Asp Ala Ser Thr Thr Ser Pro Val Asp Ser Ser Glu Leu Leu Leu Asp
65              70              75              80
Val Asn Glu Asn Gly Lys Arg Arg Thr Pro Asp Arg Thr Lys Glu Asn
            85              90              95
Gly Phe Asp Arg Glu Pro Leu His Ser Glu His Pro Ser Lys Arg Pro
            100             105             110
Cys Thr Ile Ser Pro Gly Gln Arg Tyr Lys Ser Lys
        115             120


<210> 635
<211> 187
<212> PRT
<213> Homo sapiens


<400> 635
Arg Thr Lys Ala Lys Lys Asp Lys Ala Gln Arg Xaa Xaa Xaa Xaa Xaa
1               5       ·       10              15
Xaa Xaa Gly Xaa Ala Pro His Ser Glu Ser Asp Leu Pro Glu Gln Glu
            20              25              30
Glu Glu Ile Leu Gly Ser Asp Asp Asp Glu Gln Glu Asp Pro Asn Asp
        35              40              45
```

```
      Tyr Cys Lys Gly Gly Tyr His Leu Val Lys Ile Gly Asp Leu Phe Asn
          50                  55              60
      Gly Arg Tyr His Val Ile Arg Lys Leu Gly Trp Gly His Phe Ser Thr
      65                  70              75                  80
  5   Val Trp Leu Ser Trp Asp Ile Gln Gly Lys Lys Phe Val Ala Met Lys
                      85              90                  95
      Xaa Val Lys Ser Ala Glu His Tyr Thr Glu Thr Ala Leu Asp Glu Ile
                  100             105             110
      Xaa Leu Leu Lys Ser Val Arg Asn Ser Asp Pro Asn Asp Pro Asn Arg
 10           115             120             125
      Glu Met Val Val Gln Leu Leu Asp Asp Phe Lys Ile Ser Gly Val Asn
          130             135             140
      Gly Thr His Ile Cys Met Val Phe Glu Val Leu Gly His His Leu Leu
      145             150             155             160
 15   Lys Trp Ile Ile Lys Ser Asn Tyr Xaa Gly Leu Pro Leu Pro Cys Xaa
                  165             170             175
      Lys Lys Ile Ile Xaa Xaa Val Phe Thr Gly Xaa
                  180             185


 20           <210> 636
              <211> 275
              <212> PRT
              <213> Homo sapiens


 25           <400> 636
      Ser Arg Ala Cys Arg Ser Thr Leu Val Asp Pro Lys Arg Val Cys Lys
      1               5               10              15
      Gly Ile Leu Glu Tyr Leu Thr Val Ala Glu Val Val Glu Thr Met Glu
                  20              25              30
 30   Asp Leu Val Thr Tyr Thr Lys Asn Leu Gly Pro Gly Met Thr Lys Met
                  35              40              45
      Ala Lys Met Ile Asp Glu Arg Gln Gln Glu Leu Thr His Gln Glu His
          50              55              60
      Arg Val Met Leu Val Asn Ser Met Asn Thr Val Lys Glu Leu Leu Pro
 35   65                  70              75                  80
      Val Leu Ile Ser Ala Met Lys Ile Phe Val Thr Thr Lys Asn Ser Lys
                      85              90                  95
      Asn Gln Gly Ile Glu Glu Ala Leu Lys Asn Arg Asn Phe Thr Val Glu
                  100             105             110
 40   Lys Met Ser Ala Glu Ile Asn Glu Ile Ile Arg Val Leu Gln Leu Thr
                  115             120             125
      Ser Trp Asp Glu Asp Ala Trp Ala Ser Lys Asp Thr Glu Ala Met Lys
          130             135             140
      Arg Ala Leu Ala Ser Ile Asp Ser Lys Leu Asn Gln Ala Lys Gly Trp
 45   145             150             155             160
      Leu Arg Asp Pro Ser Ala Ser Pro Gly Asp Ala Gly Glu Gln Ala Ile
                  165             170             175
      Arg Gln Ile Leu Asp Glu Ala Gly Lys Val Gly Glu Leu Cys Ala Gly
                  180             185             190
 50   Lys Lys Arg Arg Glu Xaa Leu Gly Asn Leu Gln Asn Ala Xaa Ala Asp
              195             200             205
      Asp Cys Gln Ser Gly Leu Thr Ser Val Pro Arg Gly Gln Gly Ser Leu
          210             215             220
      Pro Xaa Gly Pro Cys Xaa Lys Ser Xaa Thr Xaa Tyr Xaa Gln Gly Leu
 55   225             230             235             240
      Gly Xaa Cys Ser Pro Ala Lys Xaa Glu Lys Ala Ser Phe Gln Ser Trp
                  245             250             255
      Glu Ser Leu Ala His Xaa Lys Pro Lys His Leu Xaa Xaa Lys Xaa Thr
                  260             265             270
 60   Met Leu Val
              275


              <210> 637
```

```
                <211> 162
                <212> PRT
                <213> Homo sapiens

                <400> 637
    Gln Lys Leu Val Ile Glu Asn Phe Asp Asp Glu Gln Ile Trp Gln Gln
    1               5                   10                  15
    Leu Glu Leu Gln Asn Glu Pro Ile Leu Gln Tyr Phe Gln Asn Ala Val
                20                  25                  30
    Ser Glu Thr Ile Asn Asp Glu Asp Ile Ser Leu Leu Pro Glu Ser Glu
                35                  40                  45
    Glu Gln Glu Arg Glu Glu Asp Gly Ser Glu Ile Glu Ala Asp Asp Lys
                50                  55                  60
    Glu Asp Leu Glu Asp Leu Glu Glu Glu Val Ser Asp Met Gly Asn
    65                  70                  75                  80
    Asp Asp Pro Glu Met Gly Glu Arg Ala Glu Asn Ser Ser Lys Ser Asp
                    85                  90                  95
    Leu Arg Lys Ser Pro Val Phe Ser Asp Glu Asp Ser Asp Leu Asp Phe
                100                 105                 110
    Asp Ile Ser Lys Leu Glu Gln Gln Ser Lys Val Gln Asn Lys Gly Gln
                115                 120                 125
    Gly Lys Pro Arg Glu Lys Ser Ile Val Asp Asp Lys Phe Phe Lys Leu
                130                 135                 140
    Ser Glu Met Glu Ala Tyr Leu Glu Asn Ile Glu Lys Glu Glu Glu Pro
    145                 150                 155                 160
    Lys Arg


                <210> 638
                <211> 171
                <212> PRT
                <213> Homo sapiens

                <400> 638
    Lys Met Ala Ala Gly Phe Lys Thr Val Glu Pro Xaa Glu Tyr Tyr Arg
    1               5                   10                  15
    Arg Phe Leu Lys Glu Asn Cys Arg Pro Asp Gly Arg Glu Leu Gly Glu
                20                  25                  30
    Phe Arg Thr Thr Thr Val Asn Ile Gly Ser Ile Ser Thr Ala Asp Gly
                35                  40                  45
    Ser Ala Leu Val Lys Leu Gly Asn Xaa Thr Xaa Ile Cys Gly Val Lys
                50                  55                  60
    Ala Glu Phe Ala Ala Pro Ser Thr Asp Ala Pro Asp Lys Gly Tyr Val
    65                  70                  75                  80
    Val Pro Asn Val Asp Leu Pro Pro Leu Cys Ser Ser Arg Phe Arg Ser
                    85                  90                  95
    Gly Pro Pro Gly Glu Glu Ala Gln Val Ala Ser Gln Phe Ile Ala Asp
                100                 105                 110
    Val Ile Glu Asn Ser Gln Ile Ile Gln Lys Glu Asp Leu Cys Ile Ser
                115                 120                 125
    Pro Gly Lys Leu Val Trp Val Leu Tyr Cys Asp Leu Ile Cys Leu Asp
                130                 135                 140
    Tyr Asp Gly Asn Ile Leu Asp Ala Cys Thr Phe Xaa Leu Leu Ala Ala
    145                 150                 155                 160
    Leu Lys Asn Val Gln Val Ala Leu Lys Leu Leu
                    165                 170


                <210> 639
                <211> 230
                <212> PRT
                <213> Homo sapiens

                <400> 639
```

226

```
     Xaa Ser Arg Ala Cys Arg Ser Thr Leu Val Asp Pro Lys Leu Lys Ala
     1               5                   10              15
     Lys Asp Gln Gly Lys Pro Glu Val Gly Glu Tyr Ala Lys Leu Glu Lys
                 20              25                  30
 5   Ile Asn Ala Glu Gln Gln Leu Lys Ile Gln Glu Leu Gln Glu Lys Leu
             35              40                  45
     Glu Lys Ala Val Lys Ala Ser Thr Glu Ala Thr Glu Leu Leu Gln Asn
             50              55                  60
     Ile Arg Gln Ala Lys Glu Arg Ala Glu Arg Glu Leu Glu Lys Leu Gln
10   65              70                  75                      80
     Asn Arg Glu Asp Ser Ser Glu Gly Ile Arg Lys Lys Leu Val Glu Ala
                     85                  90                  95
     Glu Glu Arg Arg His Ser Leu Glu Asn Lys Val Lys Arg Leu Glu Thr
                 100                 105                 110
15   Met Glu Arg Arg Glu Asn Arg Leu Lys Asp Asp Ile Gln Thr Lys Ser
                 115                 120                 125
     Gln Gln Ile Gln Gln Met Ala Asp Lys Ile Leu Glu Leu Glu Glu Lys
         130                 135                 140
     His Arg Glu Ala Gln Val Ser Ala Gln His Leu Glu Val His Leu Lys
20   145                 150                 155                 160
     Gln Lys Glu Gln His Tyr Glu Glu Lys Ile Lys Val Leu Asp Asn Gln
                     165                 170                 175
     Ile Lys Lys Asp Leu Ala Asp Lys Glu Thr Leu Glu Asn Met Met Gln
                     180                 185                 190
25   Arg His Glu Glu Glu Ala His Glu Xaa Gly Lys Ile Leu Gln Arg Thr
                     195                 200                 205
     Glu Gly Asp Asp Gln Cys Tyr Gly Phe Gln Asp Gln Ile Pro Gly Thr
         210                 215                 220
     Xaa Asp Cys Gly Thr Val
30   225                 230


         <210> 640
         <211> 256
         <212> PRT
35       <213> Homo sapiens


         <400> 640
     Phe Glu Lys Asp Ala Asp Ser Ser Glu Arg Ile Ile Ala Pro Met Arg
     1               5                   10              15
40   Trp Gly Leu Val Pro Ser Trp Phe Lys Glu Ser Asp Pro Ser Lys Leu
                 20              25                  30
     Gln Phe Asn Thr Thr Asn Cys Arg Ser Asp Thr Val Met Glu Lys Arg
             35              40                  45
     Ser Phe Lys Val Pro Leu Gly Lys Gly Arg Arg Cys Val Val Leu Ala
45   50              55                  60
     Asp Gly Phe Tyr Glu Trp Gln Arg Cys Gln Gly Thr Asn Gln Arg Gln
     65              70                  75                      80
     Pro Tyr Phe Ile Tyr Phe Pro Gln Ile Lys Thr Glu Lys Ser Gly Ser
                     85                  90                  95
50   Ile Gly Ala Ala Asp Ser Pro Glu Asn Trp Glu Lys Val Trp Asp Asn
                 100                 105                 110
     Trp Arg Leu Leu Thr Met Ala Gly Ile Phe Asp Cys Trp Glu Pro Pro
                 115                 120                 125
     Glu Gly Gly Asp Val Leu Tyr Ser Tyr Thr Ile Ile Thr Val Asp Ser
55   130                 135                 140
     Cys Lys Gly Leu Ser Asp Ile His His Arg Met Pro Ala Ile Leu Asp
     145                 150                 155                 160
     Gly Glu Glu Ala Val Ser Lys Trp Leu Asp Phe Gly Glu Val Ser Thr
                     165                 170                 175
60   Xaa Glu Ala Leu Lys Leu Ile His Pro Thr Glu Asn Ile Thr Phe His
                     180                 185                 190
     Ala Val Ser Ser Val Xaa Asn Asn Ser Arg Asn Asn Thr Ser Glu Cys
         195                 200                 205
```

```
     Leu Ala Xaa Val Asp Leu Val Val Lys Xaa Glu Leu Lys Ala Ser Gly
         210                 215             220
     Asn Xaa Pro Lys Asp Val Ala Met Gly Trp Xaa Gln Ser Xaa Pro Lys
     225                 230             235             240
5    Lys Glu Asp Ser Lys Thr Leu Gln Lys Glu Lys Val Arg Cys Xaa Pro
                     245             250             255


             <210> 641
             <211> 178
10           <212> PRT
             <213> Homo sapiens


             <400> 641
     Gln Ser Asn Ser Pro Val Leu Leu Ser Arg Leu His Phe Glu Lys Asp
15   1               5               10              15
     Ala Asp Ser Ser Glu Arg Ile Ile Ala Pro Met Arg Trp Gly Leu Val
                 20              25              30
     Pro Ser Trp Phe Lys Glu Ser Asp Pro Ser Lys Leu Gln Phe Asn Thr
                 35              40              45
20   Thr Asn Cys Arg Ser Asp Thr Val Met Glu Lys Arg Ser Phe Lys Val
                 50              55              60
     Pro Leu Gly Lys Gly Arg Arg Cys Val Val Leu Ala Asp Gly Phe Tyr
     65              70              75              80
     Glu Trp Gln Arg Cys Gln Gly Thr Asn Gln Arg Gln Pro Tyr Phe Ile
25                   85              90              95
     Tyr Phe Pro Gln Ile Lys Thr Glu Lys Ser Gly Ser Ile Gly Ala Ala
                 100             105             110
     Asp Ser Pro Glu Asn Trp Glu Lys Val Trp Asp Asn Trp Arg Leu Leu
                 115             120             125
30   Thr Met Ala Gly Ile Phe Asp Cys Trp Glu Pro Pro Glu Gly Gly Asp
                 130             135             140
     Val Leu Tyr Ser Tyr Thr Ile Ile Thr Val Asp Ser Cys Lys Gly Leu
     145             150             155             160
     Ser Asp Ile His His Arg Met Pro Ala Ile Leu Asp Gly Glu Glu Ala
35                   165             170             175
     Ser Phe



             <210> 642
40           <211> 235
             <212> PRT
             <213> Homo sapiens


             <400> 642
45   Ala Val Ser Val Ser Cys Ile Thr Tyr Leu Arg Gly Ile Phe Pro Glu
     1               5               10              15
     Cys Ala Tyr Gly Thr Arg Tyr Leu Asp Asp Leu Cys Val Lys Ile Leu
                 20              25              30
     Arg Glu Asp Lys Asn Cys Pro Gly Ser Thr Gln Leu Val Lys Trp Met
50               35              40              45
     Leu Gly Cys Tyr Asp Ala Leu Gln Lys Lys Tyr Leu Arg Met Val Val
                 50              55              60
     Leu Ala Val Tyr Thr Asn Pro Glu Asp Pro Gln Thr Ile Ser Glu Cys
     65              70              75              80
55   Tyr Gln Phe Lys Phe Lys Tyr Thr Asn Asn Gly Pro Leu Met Asp Phe
                     85              90              95
     Ile Ser Lys Asn Gln Ser Asn Glu Ser Ser Met Leu Ser Thr Asp Thr
                 100             105             110
     Lys Lys Ala Ser Ile Leu Leu Ile Arg Lys Ile Tyr Ile Leu Met Gln
60               115             120             125
     Asn Leu Gly Pro Leu Pro Asn Asp Val Cys Leu Thr Met Lys Leu Phe
                 130             135             140
     Tyr Tyr Asp Glu Val Thr Pro Pro Asp Tyr Gln Pro Pro Gly Phe Lys
```

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       145                    150                   155                        160
       Asp Gly Asp Cys Glu Gly Val Ile Phe Glu Gly Glu Pro Met Tyr Leu
                       165                   170                   175
       Asn Val Gly Glu Val Ser Thr Pro Phe His Ile Phe Lys Val Lys Val
  5                    180                   185                   190
       Thr Thr Glu Arg Glu Arg Met Glu Asn Ile Asp Ser Thr Xaa Leu Ser
                   195                   200                   205
       Pro Lys Gln Ile Lys Thr Pro Phe Gln Lys Ile Leu Arg Asp Lys Asp
                   210                   215                   220
 10    Val Xaa Xaa Glu Gln Asp Xaa Tyr Ile Ser Gly
       225                   230                   235


            <210> 643
            <211> 301
 15         <212> PRT
            <213> Homo sapiens


            <400> 643
       Thr Xaa Leu Ala Arg Xaa Gln Val Asp Thr Ser Gly Ser Lys Ala Met
 20      1               5                   10                  15
       Met Leu Pro Val Leu Thr His His Ile Arg Tyr His Gln Cys Leu Met
                       20                  25                  30
       His Leu Asp Lys Leu Ile Gly Tyr Thr Phe Gln Asp Arg Cys Leu Leu
                   35                  40                  45
 25    Gln Leu Ala Met Thr His Pro Ser His His Leu Asn Phe Gly Met Asn
                   50                  55                  60
       Pro Asp His Ala Arg Asn Ser Leu Ser Asn Cys Gly Ile Arg Gln Pro
       65                  70                  75                  80
       Lys Tyr Gly Asp Arg Lys Val His His Met His Met Arg Lys Lys Gly
 30                    85                  90                  95
       Ile Asn Thr Leu Ile Asn Ile Met Ser Arg Leu Gly Gln Asp Asp Pro
                   100                 105                 110
       Thr Pro Ser Arg Ile Asn His Asn Glu Arg Leu Glu Phe Leu Gly Asp
                   115                 120                 125
 35    Ala Val Val Glu Phe Leu Thr Ser Val His Leu Tyr Tyr Leu Phe Pro
           130                 135                 140
       Ser Leu Glu Glu Gly Gly Leu Ala Thr Tyr Arg Thr Ala Ile Val Gln
       145                 150                 155                 160
       Asn Gln His Leu Ala Met Leu Ala Lys Lys Leu Glu Leu Asp Arg Phe
 40                    165                 170                 175
       Met Leu Tyr Ala His Gly Pro Asp Leu Cys Arg Glu Ser Asp Leu Arg
                   180                 185                 190
       His Ala Met Ala Asn Cys Phe Glu Ala Leu Ile Gly Ala Val Tyr Leu
                   195                 200                 205
 45    Glu Gly Ser Leu Glu Glu Ala Lys Gln Leu Phe Gly Arg Leu Leu Phe
           210                 215                 220
       Asn Asp Pro Asp Leu Arg Glu Val Trp Leu Asn Tyr Pro Leu His Pro
       225                 230                 235                 240
       Leu Gln Leu Gln Glu Pro Asn Thr Asp Arg Gln Leu Ile Gly Asn Phe
 50                    245                 250                 255
       Phe Gln Phe Tyr Lys Lys Leu Thr Glu Phe Glu Arg Asn Gln Leu Gly
                   260                 265                 270
       Val Asn Phe Leu Leu Ile Gly Ser Asp Phe Xaa Ala Xaa Gly Xaa Ser
                   275                 280                 285
 55    His Leu Arg Asn Trp Gly Asp Leu Thr Xaa Xaa Thr Pro
           290                 295                 300


            <210> 644
            <211> 163
 60         <212> PRT
            <213> Homo sapiens


            <400> 644
```

```
       Pro Ile Met Ser Xaa Xaa Thr Xaa Ser Thr Leu Val Asp Pro Lys Leu
       1               5                   10                  15
       Cys Leu Val Tyr Val Tyr Met Pro Asn Gly Ser Leu Leu Asp Arg Leu
                   20                  25                  30
 5     Ser Cys Leu Asp Gly Thr Pro Pro Leu Ser Trp His Met Arg Cys Lys
                   35                  40                  45
       Ile Ala Gln Gly Ala Ala Asn Gly Ile Asn Phe Leu His Glu Asn His
                   50                  55                  60
       His Ile His Arg Asp Ile Lys Ser Ala Asn Ile Leu Leu Asp Glu Ala
10     65                  70                  75                  80
       Phe Thr Ala Lys Ile Ser Asp Phe Gly Leu Ala Arg Ala Ser Glu Lys
                           85                  90                  95
       Phe Ala Gln Thr Val Met Thr Ser Arg Ile Val Gly Thr Thr Ala Tyr
                   100                 105                 110
15     Met Ala Pro Glu Ala Leu Arg Gly Glu Ile Thr Pro Lys Ser Asp Ile
                   115                 120                 125
       Tyr Ser Phe Gly Val Val Leu Leu Glu Ile Ile Thr Gly Leu Pro Ala
                   130                 135                 140
       Val Asp Glu His Arg Glu Pro Gln Leu Leu Leu Asp Ile Lys Arg Arg
20     145                 150                 155                 160
       Asn Xaa Arg


          <210> 645
25        <211> 155
          <212> PRT
          <213> Homo sapiens


          <400> 645
30     Asp Tyr Arg Xaa Ile Glu Ile Thr Ile Cys Lys Asn Asp Glu Cys Val
       1               5                   10                  15
       Leu Glu Asp Asn Ser Gln Arg Thr Lys Trp Lys Val Ile Ser Pro Thr
                   20                  25                  30
       Gly Asn Glu Ala Xaa Val Pro Xaa Val Cys Phe Leu Ile Pro Pro Pro
35                 35                  40                  45
       Asn Lys Asp Ala Ile Xaa Met Ala Ser Arg Val Glu Gln Ser Tyr Xaa
                   50                  55                  60
       Lys Val Met Ala Leu Trp His Gln Leu His Val Asn Thr Lys Ser Leu
       65                  70                  75                  80
40     Xaa Ser Trp Asn Tyr Leu Arg Lys Asp Leu Asp Leu Val Gln Thr Trp
                           85                  90                  95
       Asn Leu Glu Lys Leu Arg Ser Ser Ala Pro Gly Glu Cys His Gln Ile
                   100                 105                 110
       Met Xaa Asn Leu Gln Ala His Tyr Glu Asp Phe Xaa Gln Asp Ser Arg
45     115                 120                 125
       Asp Ser Val Leu Val Ser Val Ala Asp Arg Leu Arg Leu Glu Glu Glu
                   130                 135                 140
       Xaa Glu Ala Cys Lys Ala Arg Phe Gln His Leu
       145                 150                 155
50
          <210> 646
          <211> 200
          <212> PRT
          <213> Homo sapiens
55
          <400> 646
       Arg Gly Asn Xaa Gln Gly Lys Ala Xaa Ser Ser Glu Thr Lys Glu Ser
       1               5                   10                  15
       Thr Asp Ile Glu Lys Ala Ile Leu Glu Gln Gln Val Leu Ser Glu Glu
60                 20                  25                  30
       Leu Thr Thr Lys Lys Glu Gln Val Phe Glu Ala Ile Lys Thr Ser Gln
                   35                  40                  45
       Ile Phe Leu Ala Lys His Gly His Lys Leu Ser Glu Lys Glu Lys Lys
```

236

```
            50                    55                      60
      Gln Ile Ser Glu Gln Leu Asn Ala Leu Asn Lys Ala Tyr His Asp Leu
      65                    70                    75                    80
      Cys Asp Gly Ser Ala Asn Gln Leu Gln Gln Leu Gln Ser Gln Leu Ala
                        85                    90                    95
      His Gln Thr Glu Gln Lys Glu Cys Arg Ala Val Ala Gly Val Ile Asp
                    100                   105                   110
      Leu Gly Thr Val Glu Ile Phe Pro Ile Phe Lys Ala Met Gln Lys Gly
                115                   120                   125
      Leu Leu Asp Gln Asp Thr Gly Leu Val Leu Leu Glu Ser Gln Val Ile
                130                   135                   140
      Met Ser Gly Leu Ile Ala Pro Glu Thr Gly Glu Asn Leu Ser Leu Glu
      145                   150                   155                   160
      Glu Gly Val Ala Arg Asn Leu Ile Asn Pro Gln Met Tyr Gln Gln Leu
                    165                   170                   175
      Arg Glu Leu Gln Asp Ala Leu Ala Leu Ile Ser Arg Leu Thr Glu Ser
                    180                   185                   190
      Arg Gly Pro Leu Ser Val Val Glu
                    195                   200


            <210> 647
            <211> 169
            <212> PRT
            <213> Homo sapiens


            <400> 647
      Lys Glu Gln Arg Lys Glu Asn Glu Pro Glu Ala Glu Lys Thr His Leu
      1                 5                   10                    15
      Phe Ala Lys Gln Glu Lys Ala Phe Tyr Pro Lys Ser Phe Lys Ser Lys
                    20                    25                    30
      Lys Gln Lys Pro Ser Arg Val Leu Tyr Ser Ser Thr Glu Ser Ser Asp
                35                    40                    45
      Glu Glu Ala Leu Gln Asn Lys Lys Ile Ser Thr Ser Cys Ser Val Ile
                50                    55                    60
      Pro Glu Thr Ser Asn Ser Asp Met Gln Thr Lys Lys Glu Tyr Val Val
      65                    70                    75                    80
      Ser Gly Glu His Lys Gln Lys Gly Lys Val Lys Arg Lys Leu Lys Asn
                        85                    90                    95
      Gln Asn Lys Asn Lys Glu Asn Gln Glu Leu Lys Gln Glu Lys Glu Gly
                    100                   105                   110
      Lys Glu Asn Thr Arg Ile Thr Asn Leu Thr Val Asn Thr Gly Leu Asp
                115                   120                   125
      Cys Ser Glu Lys Thr Arg Glu Glu Gly Asn Phe Arg Lys Ser Phe Ser
                130                   135                   140
      Pro Lys Asp Asp Thr Ser Leu His Leu Phe His Ile Ser Thr Gly Lys
      145                   150                   155                   160
      Ser Pro Lys His Ser Cys Gly Leu Lys
                        165


            <210> 648
            <211> 139
            <212> PRT
            <213> Homo sapiens


            <400> 648
      Ala Phe Leu Phe Pro Ser Xaa Tyr Ala Ser Ile Tyr Val Phe Leu Met
      1                 5                   10                    15
      Xaa Tyr Leu Xaa Tyr Pro Phe Phe Ser Xaa Gly Asn Leu Asn Phe Gln
                    20                    25                    30
      Met Xaa Asp Tyr Asp Leu His Pro Leu Phe Trp His Leu Ile Phe His
                35                    40                    45
      Gln Ile Leu Xaa Gly Asn Leu Ser Asp Val Xaa Phe Phe Pro Tyr Ala
                50                    55                    60
```

```
Tyr Xaa Ile Leu Xaa Leu Asn Phe Xaa Ala Xaa Ile Gln Ile Leu Xaa
65                  70                  75                  80
Tyr His Xaa Xaa Gln Xaa Gln Ala Val Met Thr Phe Gln Asn Phe Leu
            85                  90                  95
Gly Ile Asn Met Phe Xaa Tyr Val Leu Xaa Leu Gly Gly Xaa Thr Xaa
            100             105             110
Phe His Leu Ile Xaa Xaa Asn Val Trp Xaa Ile Tyr Xaa Xaa Lys Tyr
        115             120             125
Glu Ile Asn Val Met Lys Xaa His Xaa Leu Gly
    130             135
```

```
<210> 649
<211> 321
<212> PRT
<213> Homo sapiens


<400> 649
Gly Lys Asp Leu Leu Asn Met Tyr Ile Glu Thr Glu Gly Lys Met Ile
1               5                   10                  15
Met Gln Asp Lys Leu Glu Lys Glu Arg Asn Asp Ala Lys Asn Ala Val
            20                  25                  30
Glu Glu Tyr Val Tyr Glu Phe Arg Asp Lys Leu Cys Gly Pro Tyr Glu
            35                  40                  45
Lys Phe Ile Cys Glu Gln Asp His Gln Asn Phe Leu Arg Leu Leu Thr
    50              55                  60
Glu Thr Glu Asp Trp Leu Tyr Glu Glu Gly Glu Asp Gln Ala Lys Gln
65                  70                  75                  80
Ala Tyr Val Asp Lys Leu Glu Glu Leu Met Lys Ile Gly Thr Pro Val
            85                  90                  95
Lys Val Arg Phe Gln Glu Ala Glu Glu Arg Pro Lys Met Phe Glu Glu
            100             105             110
Leu Gly Gln Arg Leu Gln His Tyr Ala Lys Ile Ala Ala Asp Phe Arg
        115             120             125
Asn Lys Asp Glu Lys Tyr Asn His Ile Asp Glu Ser Glu Met Lys Lys
    130             135             140
Val Glu Ala Lys Gln Ala Tyr Val Asp Lys Leu Glu Glu Leu Met Lys
145             150             155             160
Ile Gly Thr Pro Val Lys Val Arg Phe Gln Glu Ala Glu Glu Arg Pro
            165             170             175
Lys Met Phe Glu Glu Leu Gly Gln Arg Leu Gln His Tyr Ala Lys Ile
            180             185             190
Ala Ala Asp Phe Arg Asn Lys Asp Glu Lys Tyr Asn His Ile Asp Glu
        195             200             205
Ser Glu Met Lys Lys Val Glu Lys Ser Val Asn Glu Val Met Glu Trp
    210             215             220
Met Asn Asn Val Met Asn Ala Gln Ala Lys Lys Ser Leu Asp Gln Asp
225             230             235             240
Pro Val Val Arg Ala Gln Glu Ile Lys Thr Lys Ile Lys Glu Leu Asn
            245             250             255
Asn Thr Cys Glu Pro Val Val Thr Gln Pro Lys Pro Lys Ile Glu Ser
            260             265             270
Pro Lys Leu Glu Arg Thr Pro Asn Gly Pro Asn Ile Asp Lys Lys Glu
        275             280             285
Glu Asp Leu Glu Asp Lys Asn Asn Phe Gly Ala Glu Pro Pro His Gln
    290             295             300
Asn Gly Glu Cys Tyr Pro Asn Glu Lys Asn Ser Val Asn Met Asp Leu
305             310             315             320
Asp
```

```
<210> 650
<211> 188
<212> PRT
```

```
        <213> Homo sapiens

        <400> 650
    Cys Ala Ile Leu Ser Pro Ala Phe Lys Val Arg Glu Phe Ser Val Thr
5   1               5               10              15
    Asp Ala Val Pro Phe Pro Ile Ser Leu Ile Trp Asn His Asp Ser Glu
                20              25              30
    Asp Thr Glu Gly Val His Glu Val Phe Ser Arg Asn His Ala Ala Pro
                35              40              45
10  Phe Ser Lys Val Leu Thr Phe Leu Arg Arg Gly Pro Phe Glu Leu Glu
        50              55              60
    Ala Phe Tyr Ser Asp Pro Gln Gly Val Pro Tyr Pro Glu Ala Lys Ile
    65              70              75              80
    Gly Arg Phe Val Val Gln Asn Val Ser Ala Gln Lys Asp Gly Glu Lys
15              85              90              95
    Ser Arg Val Lys Val Lys Val Arg Val Asn Thr His Gly Ile Phe Thr
                100             105             110
    Ile Ser Thr Ala Ser Met Val Glu Lys Val Pro Thr Glu Glu Asn Glu
                115             120             125
20  Met Ser Ser Glu Ala Asp Met Glu Cys Leu Asn Gln Arg Pro Pro Glu
        130             135             140
    Asn Pro Asp Thr Asp Ala Asn Glu Lys Lys Val Asp Gln Pro Pro Glu
    145             150             ·155            160
    Ala Lys Lys Pro Lys Ile Lys Val Val Asn Val Glu Leu Pro Ile Glu
25              165             170             175
    Ala Asn Leu Val Trp Gln Leu Gly Glu Arg Pro Ser
                180             185

        <210> 651
30      <211> 174
        <212> PRT
        <213> Homo sapiens

        <400> 651
35  Xaa Ile Xaa Lys Xaa Ile Gly Lys Xaa Xaa Xaa Gly Leu Lys Pro Val
    1               5               10              15
    Gly Asn Leu Val Xaa Val ·Xaa Xaa Xaa Leu Xaa Gly Xaa Tyr Glu Lys
                20              25              30
    Phe Ile Cys Glu Xaa Val Phe Lys Xaa Xaa Asp Asp Ala Xaa Gln Xaa
40              35              40              45
    Leu Xaa Xaa Ala Val Ser Gly Xaa Gly Gly Xaa Ser Xaa Xaa Xaa Xaa
        50              55              60
    Arg Cys Xaa Val Ala Gly Leu Arg Xaa Xaa Gly Xaa Pro Val Lys Val
    65              70              75              80
45  Xaa Phe Xaa Glu His Xaa Asn Gly Gln Lys Cys Phe Xaa Thr Xaa Gln
                85              90              95
    Xaa Leu Gln Xaa Tyr Pro Lys Ile Ala Ala Asp Phe Arg Asn Lys Xaa
                100             105             110
    Xaa Lys Ser Xaa Xaa Ile Asp Glu Phe Glu Met Lys Lys Val Glu Lys
50              115             120             125
    Xaa Val Asn Glu Val Met Glu Trp Met Asn Asn Val Met Asn Ala Gln
        130             135             140
    Ala Lys Xaa Ser Phe Asp Gln Asp Pro Val Xaa Arg Ala Gln Glu Ile
    145             150             155             160
55  Lys Thr Lys Ile Lys Glu Leu Xaa Thr His Val Asn Pro Leu
                165             170

        <210> 652
        <211> 150
60      <212> PRT
        <213> Homo sapiens

        <400> 652
```

233

```
Gly Asn Ile Xaa His Ser Asp Xaa Xaa Val Xaa Xaa Gln Asn Xaa Phe
1               5                   10              15
Trp Leu Leu Asn Leu Leu Pro Phe Xaa Gln Tyr Xaa Gly His Leu Glu
            20                  25              30
Phe Phe Pro Val Xaa Xaa Ile Gln Phe Leu Val Ser Xaa Gly Leu Gln
        35              40              45
Arg Val His Met Cys Xaa Gln Phe Leu Asp Phe Cys Phe Asn Phe Leu
    50              55              60
Ser Pro Xaa Asn Trp Ile Leu Ile Lys Thr Xaa Phe Ser Leu Ser Ile
65              70                  75                  80
His Asp Ile Ile His Pro Phe His His Phe Ile Asn Xaa Leu Leu His
            85              90              95
Phe Phe His Phe Lys Leu Ile Asn Xaa Xaa Gly Phe Xaa Xaa Leu Ile
            100             105             110
Ser Glu Val Ser Cys Tyr Leu Gly Ile Xaa Leu Gln Xaa Leu Xaa Ser
        115             120             125
Xaa Lys Thr Phe Leu Ala Val Xaa Met Phe Xaa Lys Xaa Asn Phe His
    130             135             140
Trp Xaa Ala Xaa Xaa Pro
145             150
```

```
        <210> 653
        <211> 155
        <212> PRT
        <213> Homo sapiens


        <400> 653
Ala Glu Xaa Ala Ala Leu Cys Gln Asp Ser Ser Cys Phe Arg Asn Lys
1               5                   10              15
Asp Glu Lys Xaa Thr His Ile Asp Glu Xaa Glu Met Lys Lys Val Glu
            20                  25              30
Lys Ser Val Asn Glu Val Met Glu Trp Met Asn Asn Val Met Asn Ala
        35              40              45
Gln Ala Lys Lys Ser Leu Asp Gln Asp Pro Val Val Arg Ala Gln Glu
    50              55              60
Ile Lys Pro Lys Ile Lys Glu Leu Asn Asn Thr Cys Glu Pro Val Val
65              70                  75                  80
Thr Xaa Pro Lys Pro Lys Ile Glu Xaa Pro Lys Leu Glu Arg Thr Pro
            85              90              95
Asn Gly Pro Asn Ile Asp Lys Lys Glu Glu Asp Leu Glu Xaa Lys Xaa
            100             105             110
Asn Phe Gly Xaa Glu Pro Pro His Gln Asn Gly Glu Cys Tyr Pro Asn
            115             120             125
Glu Lys Asn Ser Val Asn Met Asp Leu Asp Xaa Ile Xaa Leu Asn Trp
    130             135             140
Pro Ile Pro Ser Ile Asn Lys Ile Phe Leu Pro
145             150             155
```

```
        <210> 654
        <211> 188
        <212> PRT
        <213> Homo sapiens


        <400> 654
Cys Ala Ile Leu Ser Pro Ala Phe Lys Val Arg Glu Phe Ser Val Thr
1               5                   10              15
Asp Ala Val Pro Phe Pro Ile Ser Leu Ile Trp Asn His Asp Ser Glu
            20                  25              30
Asp Thr Glu Gly Val His Glu Val Phe Ser Arg Asn His Ala Ala Pro
        35              40              45
Phe Ser Lys Val Leu Thr Phe Leu Arg Arg Gly Pro Phe Glu Leu Glu
    50              55              60
Ala Phe Tyr Ser Asp Pro Gln Gly Val Pro Tyr Pro Glu Ala Lys Ile
```

234

```
         65                    70                   75                    80
         Gly Arg Phe Val Val Gln Asn Val Ser Ala Gln Lys Asp Gly Glu Lys
                         85                    90                   95
         Ser Arg Val Lys Val Lys Val Arg Val Asn Thr His Gly Ile Phe Thr
                        100                   105                  110
         Ile Ser Thr Ala Ser Met Val Glu Lys Val Pro Thr Glu Glu Asn Glu
                        115                   120                  125
         Met Ser Ser Glu Ala Asp Met Glu Cys Leu Asn Gln Arg Pro Pro Glu
                        130                   135                  140
         Asn Pro Asp Thr Asp Ala Asn Glu Lys Lys Val Asp Gln Pro Pro Glu
         145                   150                   155                  160
         Ala Lys Lys Pro Lys Ile Lys Val Val Asn Val Glu Leu Pro Ile Glu
                        165                   170                  175
         Ala Asn Leu Val Trp Gln Leu Gly Glu Arg Pro Ser
                        180                   185
```

```
            <210> 655
            <211> 138
            <212> PRT
            <213> Homo sapiens

            <400> 655
         Ala Glu Ala Ala Ala Leu Cys Gln Asp Ser Ser Cys Phe Arg Asn Lys
         1               5                   10                   15
         Asp Glu Lys Xaa Thr His Ile Asp Glu Ser Glu Met Lys Lys Val Glu
                         20                    25                   30
         Lys Ser Val Asn Glu Val Met Glu Trp Met Asn Asn Val Met Asn Ala
                         35                    40                   45
         Gln Ala Lys Lys Ser Leu Asp Gln Asp Pro Val Val Arg Ala Gln Glu
                 50                    55                   60
         Ile Lys Thr Lys Ile Lys Glu Leu Thr Asn Thr Cys Glu Pro Val Val
         65                    70                   75                    80
         Thr Xaa Pro Lys Pro Lys Ile Glu Ser Pro Lys Leu Glu Arg Thr Pro
                         85                    90                   95
         Asn Gly Pro Asn Ile Asp Lys Lys Glu Glu Asp Leu Glu Asp Lys Asn
                        100                   105                  110
         Asn Phe Gly Ala Xaa Pro Pro His Gln Asn Gly Glu Cys Tyr Pro Asn
                        115                   120                  125
         Glu Lys Asn Ser Val Asn Met Asp Leu Asp
                 130                   135
```

```
            <210> 656
            <211> 110
            <212> PRT
            <213> Homo sapiens

            <400> 656
         Arg Xaa Arg Gln Arg Leu Gln His Tyr Ala Lys Ile Ala Ala Xaa Phe
         1               5                   10                   15
         Arg Asn Lys Asp Glu Lys Ser Pro Xaa Ile Asp Glu Phe Glu Met Lys
                         20                    25                   30
         Lys Val Glu Lys Xaa Val Asn Glu Val Met Glu Trp Met Asn Asn Val
                         35                    40                   45
         Met Asn Ala Gln Xaa Lys Xaa Ser Xaa Asp Gln Asp Pro Val Val Arg
                 50                    55                   60
         Ala Gln Glu Ile Asn Xaa Lys Ser Arg Asn Xaa Xaa Thr His Val Xaa
         65                    70                   75                    80
         Xaa Xaa Xaa Pro Asn Arg Xaa Xaa Lys Leu Asn Xaa Pro Xaa Xaa Lys
                         85                    90                   95
         Glu Leu Gln Met Ala Gln Ile Leu Ile Lys Arg Lys Lys Ile
                        100                   105                  110
```

```
            <210> 657
```

235

```
                    <211> 138
                    <212> PRT
                    <213> Homo sapiens

5                   <400> 657
        Ala Glu Ala Ala Ala Leu Cys Gln Asp Ser Ser Cys Phe Arg Asn Lys
        1               5                   10                  15
        Asp Glu Lys Ser Pro His Ile Asp Glu Phe Glu Met Lys Lys Val Xaa
                    20                  25                  30
10      Lys Xaa Val Asn Glu Val Met Glu Trp Met Asn Asn Val Met Asn Ala
                    35                  40                  45
        Gln Ala Lys Xaa Ser Phe Asp Gln Asp Pro Val Val Xaa Ala Gln Glu
                    50              55                  60
        Ile Lys Xaa Lys Ile Lys Glu Leu Xaa Xaa Xaa Cys Glu Pro Val Val
15      65              70                  75                  80
        Thr Xaa Pro Lys Xaa Lys Ile Glu Xaa Pro Xaa Leu Glu Arg Thr Xaa
                    85                  90                  95
        Asn Gly Pro Asn Ile Asp Lys Lys Glu Glu Asp Leu Glu Xaa Xaa Xaa
                    100                 105                 110
20      Xaa Phe Xaa Xaa Glu Xaa Xaa His Gln Asn Xaa Glu Cys Tyr Pro Asn
                    115                 120                 125
        Glu Lys Asn Xaa Val Asn Met Asp Leu Asp
                    130                 135

25  .               <210> 658
                    <211> 133
                    <212> PRT
                    <213> Homo sapiens

30                  <400> 658
        Gly Lys Met Ile Met Gln Asp Lys Leu Glu Lys Glu Arg Asn Asp Ala
        1               5                   10                  15
        Lys Asn Ala Val Glu Glu Tyr Val Tyr Glu Phe Arg Asp Lys Leu Cys
                    20                  25                  30
35      Gly Pro Tyr Glu Lys Phe Ile Cys Glu Gln Asp His Gln Asn Phe Leu
                    35                  40                  45
        Arg Leu Leu Thr Glu Thr Glu Asp Trp Leu Tyr Glu Glu Gly Glu Asp
                    50              55                  60
        Gln Ala Lys Gln Ala Tyr Val Asp Lys Leu Glu Glu Leu Met Lys Ile
40      65              70                  75                  80
        Gly Thr Pro Val Lys Val Arg Phe Gln Glu Ala Glu Glu Arg Pro Lys
                    85                  90                  95
        Met Phe Glu Glu Leu Gly Gln Arg Leu Gln His Tyr Ala Lys Ile Ala
                    100                 105                 110
        Ala Asp Phe Arg Asn Lys Asp Glu Lys Tyr Asn His Ile Asp Glu Ser
45                  115                 120                 125
        Glu Met Lys Lys Val
                    130

50                  <210> 659
                    <211> 118
                    <212> PRT
                    <213> Homo sapiens

55                  <400> 659
        Phe Leu Phe Ile Asn Ile Xaa Ala Ile Trp Ser Ser Phe Gln Xaa Gly
        1               5                   10                  15
        Xaa Phe Asn Phe Trp Phe Arg Leu Gly Tyr Asn Gly Xaa Thr Cys Xaa
                    20                  25                  30
60      Gly Gln Phe Leu Asp Phe Xaa Phe Asn Phe Leu Ser Xaa Tyr Asn Trp
                    35              40                  45
        Ile Leu Ile Lys Thr Xaa Phe Ser Leu Ser Ile His Asp Ile Ile His
                    50              55                  60
```

236

```
Pro Phe His His Phe Ile Asn Arg Leu Xaa Xaa Phe Phe His Phe Xaa
65            70                75                80
Leu Ile Asn Met Xaa Gly Phe Leu Ile Leu Ile Xaa Glu Val Ser Cys
            85                90                95
Xaa Leu Gly Ile Met Leu Xaa Pro Xaa Pro Ser Xaa Ser Asn Ile Leu
            100           105               110
Gly Arg Ser Ser Ala Ser
            115


        <210> 660
        <211> 141
        <212> PRT
        <213> Homo sapiens


        <400> 660
Xaa Thr Arg Xaa Arg Xaa Gln His Tyr Ala Lys Xaa Ala Ala Asp Phe
 1           5               10                15
Xaa Asn Lys Asp Glu Lys Ser Xaa His Ile Asp Glu Xaa Glu Met Lys
            20                25                30
Lys Xaa Xaa Lys Ser Val Asn Glu Val Met Glu Trp Met Asn Asn Val
            35                40                45
Met Asn Ala Gln Ala Lys Xaa Ser Leu Asp Gln Asp Pro Val Val Xaa
            50                55                60
Ala Gln Glu Ile Lys Xaa Lys Ile Lys Glu Leu Thr Xaa Thr Cys Xaa
65                70                75                80
Pro Val Val Thr Gln Pro Lys Pro Lys Ile Glu Xaa Pro Xaa Leu Glu
            85                90                95
Arg Thr Pro Asn Gly Xaa Asn Ile Asp Lys Lys Glu Glu Asp Leu Glu
            100               105               110
Xaa Lys Xaa Asn Phe Xaa Gly Glu Pro Pro His Gln Asn Gly Glu Cys
            115               120               125
Tyr Pro Asn Glu Lys Asn Ser Val Asn Met Asp Leu Asp
            130               135               140


        <210> 661
        <211> 175
        <212> PRT
        <213> Homo sapiens


        <400> 661
Ala Lys Gln Ala Tyr Val Asp Lys Leu Glu Glu Leu Met Lys Ile Gly
 1           5               10                15
Thr Pro Val Lys Val Arg Phe Gln Glu Ala Glu Glu Arg Pro Lys Met
            20                25                30
Phe Glu Glu Leu Gly Gln Arg Leu Gln His Tyr Ala Lys Ile Ala Ala
            35                40                45
Asp Phe Arg Asn Lys Asp Glu Lys Tyr Asn His Ile Asp Glu Ser Glu
            50                55                60
Met Lys Lys Val Glu Lys Ser Val Asn Glu Val Met Glu Trp Met Asn
65                70                75                80
Asn Val Met Asn Ala Gln Ala Lys Lys Ser Leu Asp Gln Asp Pro Val
            85                90                95
Val Arg Ala Gln Glu Ile Lys Thr Lys Ile Lys Glu Leu Asn Asn Thr
            100               105               110
Cys Glu Pro Val Val Thr Gln Pro Lys Pro Lys Ile Glu Ser Pro Lys
            115               120               125
Leu Glu Arg Thr Pro Asn Gly Pro Asn Ile Asp Lys Lys Glu Glu Asp
            130               135               140
Leu Glu Asp Lys Asn Asn Phe Gly Ala Glu Pro Pro His Gln Asn Gly
145               150               155               160
Glu Cys Tyr Pro Asn Glu Lys Asn Ser Val Asn Met Asp Leu Asp
            165               170               175
```

257

```
<210> 662
<211> 120
<212> PRT
<213> Homo sapiens

<400> 662
Glu Thr Glu Gly Lys Met Ile Met Gln Asp Lys Leu Glu Lys Glu Arg
1               5                   10                  15
Asn Asp Ala Lys Asn Ala Val Glu Glu Tyr Val Tyr Glu Phe Arg Asp
            20                  25                  30
Lys Leu Cys Gly Pro Tyr Glu Lys Phe Ile Cys Glu Gln Asp His Gln
        35                  40                  45
Asn Phe Leu Arg Leu Leu Thr Glu Thr Glu Asp Trp Leu Tyr Glu Glu
    50                  55                  60
Xaa Glu Asp Gln Ala Lys Gln Xaa Xaa Val Asp Xaa Leu Glu Xaa Leu
65                  70                  75                  80
Met Lys Xaa Xaa Thr Pro Val Lys Val Arg Phe Gln Glu Ala Glu Glu
            85                  90                  95
Arg Pro Lys Met Phe Glu Glu Leu Gly Gln Arg Leu Xaa His Tyr Ala
            100                 105                 110
Lys Ile Ala Ala Asp Phe Lys Lys
        115                 120


<210> 663
<211> 79
<212> PRT
<213> Homo sapiens

<400> 663
Xaa Phe Gln Xaa Val Asp Xaa Xaa Leu Phe Ser Leu Val Leu Xaa Phe
1               5                   10                  15
Phe Ile Gln Pro Val Phe Ser Phe Cys Glu Glu Ser Gln Lys Ile Leu
            20                  25                  30
Met Ile Leu Leu Thr Tyr Lys Phe Phe Ile Trp Ser Thr Gln Leu Val
        35                  40                  45
Ser Glu Leu Ile His Ile Phe Leu Asn Cys Ile Phe Ser Ile Ile Pro
    50                  55                  60
Phe Phe Phe Gln Phe Ile Leu His Tyr His Leu Thr Leu Cys Leu
65                  70                  75


<210> 664
<211> 97
<212> PRT
<213> Homo sapiens

<400> 664
Met Asn Asn Val Met Asn Ala Gln Ala Lys Lys Ser Leu Asp Gln Asp
1               5                   10                  15
Pro Val Val Arg Ala Gln Glu Ile Lys Thr Lys Ile Lys Glu Leu Asn
            20                  25                  30
Asn Thr Cys Glu Pro Val Val Thr Gln Pro Lys Pro Lys Ile Glu Ser
        35                  40                  45
Pro Lys Leu Glu Arg Thr Pro Asn Gly Pro Asn Ile Asp Lys Lys Glu
    50                  55                  60
Glu Asp Leu Glu Asp Lys Asn Asn Phe Gly Ala Glu Pro Pro His Gln
65                  70                  75                  80
Asn Gly Glu Cys Tyr Pro Asn Glu Lys Asn Ser Val Asn Met Asp Leu
            85                  90                  95
Asp


<210> 665
<211> 178
```

```
        <212> PRT
        <213> Homo sapiens


        <400> 665
Glu Asp Gln Ala Lys Gln Ala Tyr Val Asp Lys Leu Glu Glu Leu Met
1               5               10              15
Lys Ile Gly Thr Pro Val Lys Val Arg Phe Gln Glu Ala Glu Glu Arg
            20              25              30
Pro Lys Met Phe Glu Glu Leu Gly Gln Arg Leu Gln His Tyr Ala Lys
        35              40              45
Ile Ala Ala Asp Phe Arg Asn Lys Asp Glu Lys Tyr Asn His Ile Asp
    50              55              60
Glu Ser Glu Met Lys Lys Val Glu Lys Ser Val Asn Glu Val Met Glu
65              70              75              80
Trp Met Asn Asn Val Met Asn Ala Gln Ala Lys Lys Ser Leu Asp Gln
            85              90              95
Asp Pro Val Val Arg Ala Gln Glu Ile Lys Thr Lys Ile Lys Glu Leu
            100             105             110
Asn Asn Thr Cys Glu Pro Val Val Thr Gln Pro Lys Pro Lys Ile Glu
        115             120             125
Ser Pro Lys Leu Glu Arg Thr Pro Asn Gly Pro Asn Ile Asp Lys Lys
        130             135             140
Glu Glu Asp Leu Glu Asp Lys Asn Asn Phe Gly Ala Glu Pro Pro His
145             150             155             160
Gln Asn Gly Glu Cys Tyr Pro Asn Glu Lys Asn Ser Val Asn Met Asp
            165             170             175
Leu Asp



        <210> 666
        <211> 198
        <212> PRT
        <213> Homo sapiens


        <400> 666
Gly Arg Gln Pro Glu Val Arg Ser Asp Leu Arg Arg Leu Ser Pro Ala
1               5               10              15
Phe Ser Gln Gly Phe Leu Ser Ala Ser Arg Arg Cys Pro Arg Gly Ser
            20              25              30
Arg Arg Leu Leu Thr Gly Arg Gly Cys Leu Cys Val Leu Leu Ser Val
            35              40              45
Arg Gly Thr Ala Arg Pro Arg Gly Pro Glu Gln Asn Ala Ala Arg Ala
    50              55              60
Glu Ser Gly Gly Arg Arg Ser Arg Gln Gly Ala Gly Gly Arg Arg Pro
65              70              75              80
Arg Pro Glu Ala Glu Ala Asp Arg Glu Pro Ala Met Ser Val Val Gly
            85              90              95
Leu Asp Val Gly Ser Gln Ser Cys Tyr Ile Ala Val Ala Arg Ala Gly
            100             105             110
Gly Ile Glu Thr Ile Ala Asn Glu Phe Ser Asp Arg Cys Thr Pro Ser
        115             120             125
Val Ile Ser Phe Gly Ser Lys Asn Arg Thr Ile Gly Val Ala Ala Lys
        130             135             140
Asn Gln Gln Ile Thr His Ala Asn Asn Thr Val Ser Asn Phe Lys Arg
145             150             155             160
Phe His Gly Arg Ala Phe Asn Asp Pro Phe Ile Gln Lys Glu Lys Gly
            165             170             175
Lys Leu Glu Leu Arg Phe Gly Ser Ile Glu Lys Trp Xaa Ser Trp Asn
            180             185             190
Lys Xaa Asn Val His Gly
            195


        <210> 667
```

```
                <211> 100
                <212> PRT
                <213> Homo sapiens

                <400> 667
      Thr Ser Thr Pro Thr His Met Leu Asn Gly Glu Gln Asn Ala Arg Lys
      1               5               10              15
      Leu Pro Trp Gln Glu Gln Met Leu Lys Asp Phe Asn His Ser Pro Leu
                20              25              30
      Glu Gln Xaa Val Gln Phe Phe Phe Ser Lys Arg Gln Lys Ser Val Ser
                35              40              45
      Ser Ser Xaa Met Gln Met Xaa Arg Leu His Arg Lys Leu Ser Met Asn
                50              55              60
      Ser Gln Phe His Arg Asn Xaa Lys Val Thr Lys Ala Ile Phe Pro Phe
      65              70              75              80
      Arg Xaa Ile Lys Thr Thr Asp Leu Ser Phe Phe Leu Phe Pro Tyr Asn
                      85              90              95
      Xaa Gln Lys Phe
                100


                <210> 668
                <211> 141
                <212> PRT
                <213> Homo sapiens


                <400> 668
      Gly Arg Gln Pro Glu Val Arg Ser Asp Leu Arg Arg Leu Ser Pro Ala
      1               5               10              15
      Phe Ser Gln Gly Phe Leu Ser Ala Ser Arg Arg Cys Pro Arg Gly Ser
                20              25              30
      Arg Arg Leu Leu Thr Gly Arg Gly Cys Leu Cys Val Leu Leu Ser Val
                35              40              45
      Arg Gly Thr Ala Arg Pro Arg Gly Pro Glu Xaa Asn Ala Ala Arg Ala
                50              55              60
      Glu Ser Gly Gly Arg Arg Ser Xaa Gln Gly Ala Gly Gly Arg Arg Pro
      65              70              75              80
      Arg Pro Glu Ala Xaa Ala Asp Arg Glu Pro Ala Met Ser Val Val Gly
                      85              90              95
      Leu Asp Val Gly Xaa Gln Ser Cys Tyr Ile Ala Val Ala Arg Ala Gly
                100             105             110
      Gly Ile Glu Thr Ile Ala Xaa Glu Phe Xaa Asp Arg Xaa Thr Pro Xaa
                115             120             125
      Val Ile Ser Phe Xaa Ser Lys Asn Ile Asn Lys Ser Glu
                130             135             140


                <210> 669
                <211> 116
                <212> PRT
                <213> Homo sapiens


                <400> 669
      Gln Leu Xaa Glu Pro Thr Ser Asn Pro Thr Thr Asp Met Ala Gly Ser
      1               5               10              15
      Arg Ser Xaa Ser Ala Ser Gly Leu Gly Leu Arg Pro Pro Ala Pro Cys
                20              25              30
      Xaa Leu Leu Pro Pro Leu Ser Ala Leu Ala Ala Xaa Cys Ser Gly
                35              40              45
      Pro Arg Gly Leu Ala Val Pro Leu Thr Leu Arg Arg Thr His Arg Gln
      50              55              60
      Pro Arg Pro Val Arg Ser Leu Leu Leu Pro Arg Gly Gln Arg Arg Leu
      65              70              75              80
      Ala Asp Lys Lys Pro Trp Glu Lys Ala Gly Leu Ser Leu Arg Arg Ser
                      85              90              95
```

```
Leu Arg Thr Ser Gly Cys Leu Pro His Ser Ala Ala Ala Arg Thr Pro
            100                 105                 110
Ala Pro Ala Leu
            115

        <210> 670
        <211> 107
        <212> PRT
        <213> Homo sapiens

        <400> 670
Tyr Asp Xaa Arg Gly Xaa Pro Val Xaa Glu Leu Xaa Gly Asp Gly Leu
1               5               10                  15
Asp Ala Pro Gly Pro Gly Tyr Arg Asp Val Ala Ala Leu Xaa Ala His
            20                  25                  30
Val Gln Pro His His Arg His Gly Arg Leu Ala Val Arg Xaa Arg Leu
            35                  40                  45
Gly Ser Arg Ser Ala Ser Ser Gly Pro Leu Xaa Ala Ser Pro Ala Ala
        50                  55                  60
Ala Phe Cys Pro Gly Arg Val Xaa Leu Arg Pro Ala Gly Ser Gly Arg
65                      70                  75                  80
Ser Ser Asp Thr Gln Lys Asp Thr Gln Thr Ala Ala Ala Cys Gln Glu
                85                  90                  95
Pro Pro Thr Pro Pro Gly Thr Ala Ala Ala Gly
            100                 105

        <210> 671
        <211> 139
        <212> PRT
        <213> Homo sapiens

        <400> 671
Gly Asn Val Cys Lys Trp Gly Pro Val His Val Ser Val Trp Cys Ala
1               5               10                  15
Cys Gly Asn Val Cys Lys Trp Ala Pro Val Arg Val Cys Gly Val Cys
            20                  25                  30
Val Gly Met Cys Ala Ser Gly Arg Leu Cys Glu Cys Val Val Arg Val
            35                  40                  45
Trp Glu Cys Val Gln Val Gly Ala Cys Pro Cys Glu Cys Val Val Arg
        50                  55                  60
Val Leu Glu Cys Val Gln Val Asp Ala Cys Ala Cys Glu Cys Val Val
65                      70                  75                  80
Arg Val Gly Met Cys Ala Ser Gly His Leu Cys Glu Cys Val Val Arg
                85                  90                  95
Val Trp Glu Cys Val Gln Val Gly Thr Cys Pro Trp Glu Cys Val Val
            100                 105                 110
Arg Val Trp Glu Cys Val Gln Val Gly Ala Cys Ala Cys Glu Cys Glu
            115                 120                 125
Asp Thr Ser Cys Ser Gly Val Thr Asn Pro Ile
        130                 135

        <210> 672
        <211> 139
        <212> PRT
        <213> Homo sapiens

        <400> 672
Val Cys Gly Val His Val Gly Met Cys Ala Ser Gly Arg Leu Cys Glu
1               5               10                  15
Cys Val Val Cys Val Trp Glu Cys Val Gln Val Gly Ala Cys Ala Ser
            20                  25                  30
Val Trp Cys Val Cys Gly Asn Val Cys Lys Trp Ala Pro Ala His Val
        35                  40                  45
```

241

```
      Ser Val Trp Cys Val Cys Trp Asn Val Cys Lys Trp Thr Pro Ala His
          50              55              60
      Val Ser Val Trp Cys Val Trp Glu Cys Val Gln Val Gly Thr Cys Ala
      65              70              75                      80
   5  Ser Val Trp Cys Ala Cys Gly Asn Val Cys Lys Trp Ala Pro Ala His
                  85              90                      95
      Gly Ser Val Trp Cys Ala Cys Gly Asn Val Cys Lys Trp Glu Pro Ala
                  100             105             110
      His Val Ser Val Arg Thr Pro Arg Ala Gln Val Ser Pro Thr Pro Phe
  10              115             120             125
      Lys Lys Glu Ile Thr Met Met Thr Thr Ser Leu
          130             135


          <210> 673
  15      <211> 134
          <212> PRT
          <213> Homo sapiens


          <400> 673
  20  His Leu Ser Thr Arg Cys Pro His Thr His Met Arg Arg Leu Pro Leu
      1               5               10              15
      Ala His Ile Pro Thr Arg Ala Pro His Thr Pro Met Gly Arg Cys Pro
                  20              25              30
      Leu Ala His Ile Pro Thr Arg Ala Pro His Thr Arg Thr Gly Ala His
  25          35              40              45
      Leu His Thr Phe Pro His Ala Pro His Thr His Met Arg Arg Arg Pro
          50              55              60
      Leu Ala His Ile Pro Thr His Ala Pro His Thr His Met Gly Arg Arg
      65              70              75                      80
  30  Pro Leu Ala His Ile Pro Thr His Ala Pro His Thr Arg Thr Gly Ala
                  85              90                      95
      His Leu His Thr Phe Pro His Thr His His Thr Leu Ala Gln Ala Pro
                  100             105             110
      Thr Cys Thr His Ser His Met His Thr Thr His Ser His Ala Gln Ala
  35          115             120             125
      Pro Thr Cys Thr His Ser
          130


          <210> 674
  40      <211> 132
          <212> PRT
          <213> Homo sapiens


          <400> 674
  45  Ala Arg Gly Val Leu Thr Leu Thr Cys Ala Gly Ser His Leu His Thr
      1               5               10              15
      Phe Pro His Ala His His Thr Leu Pro Trp Ala Gly Ala His Leu His
                  20              25              30
      Thr Phe Pro His Ala His His Thr Leu Ala Gln Val Pro Thr Cys Thr
  50          35              40              45
      His Ser His Thr His His Thr Leu Thr Cys Ala Gly Val His Leu His
          50              55              60
      Thr Phe Gln His Thr His His Thr Leu Thr Trp Ala Gly Ala His Leu
      65              70              75                      80
  55  His Thr Phe Pro His Thr His His Thr Leu Ala Gln Ala Pro Thr Cys
                  85              90                      95
      Thr His Ser His Thr His Thr Thr His Ser His Arg Arg Pro Leu Ala
                  100             105             110
      His Ile Pro Thr Cys Thr Pro His Thr His Met His Arg Pro Pro Leu
  60          115             120             125
      Ala His Ile Pro
          130
```

242

```
        <210> 675
        <211> 138
        <212> PRT
        <213> Homo sapiens

        <400> 675
Met Gly Leu Val Thr Pro Glu His Glu Val Ser Ser His Ser His Ala
1               5                   10                  15
Gln Ala Pro Thr Cys Thr His Ser His Thr Arg Thr Thr His Ser His
            20                  25                  30
Gly Gln Val Pro Thr Cys Thr His Ser His Thr Arg Thr Thr His Ser
            35                  40                  45
His Arg Cys Pro Leu Ala His Ile Pro Thr Arg Thr Thr His Ser His
        50                  55                  60
Ala Gln Ala Ser Thr Cys Thr His Ser Asn Thr Arg Thr Thr His Ser
65                  70                  75                  80
His Gly Gln Ala Pro Thr Cys Thr His Ser His Thr Arg Thr Thr His
                85                  90                  95
Ser His Arg Arg Pro Leu Ala His Ile Pro Thr His Thr Pro His Thr
            100                 105                 110
Arg Thr Gly Ala His Leu His Thr Phe Pro His Ala His His Thr Leu
        115                 120                 125
Thr Cys Thr Gly Pro His Leu His Thr Phe
        130                 135


        <210> 676
        <211> 96
        <212> PRT
        <213> Homo sapiens


        <400> 676
Met Glu Ser Lys Met Gln Glu Asn Tyr Leu Gly Arg Asn Lys Cys Leu
1               5                   10                  15
Lys Ile Leu Ile Thr Ala Leu Leu Asn Lys Gln Tyr Lys Phe Phe Phe
            20                  25                  30
Ser Lys Arg Gln Lys Ser Val Ser Ser Val Met Gln Met Xaa Arg
        35                  40                  45
Leu His Arg Lys Leu Ser Met Asn Ser Gln Phe His Arg Asn Leu Lys
        50                  55                  60
Val Thr Lys Ala Ile Phe Pro Phe Arg Ile Ile Lys Thr Thr Xaa Leu
65                  70                  75                  80
Lys Leu Phe Phe Phe Phe His Ile Ile His Lys Ile Ser Lys Tyr Pro
                85                  90                  95


        <210> 677
        <211> 178
        <212> PRT
        <213> Homo sapiens


        <400> 677
Glu Asp Gln Ala Lys Gln Ala Tyr Val Asp Lys Leu Glu Glu Leu Met
1               5                   10                  15
Lys Ile Gly Thr Pro Val Lys Val Arg Phe Gln Glu Ala Glu Glu Arg
            20                  25                  30
Pro Lys Met Phe Glu Glu Leu Gly Gln Arg Leu Gln His Tyr Ala Lys
        35                  40                  45
Ile Ala Ala Asp Phe Arg Asn Lys Asp Glu Lys Tyr Asn His Ile Asp
        50                  55                  60
Glu Ser Glu Met Lys Lys Val Glu Lys Ser Val Asn Glu Val Met Glu
65                  70                  75                  80
Trp Met Asn Asn Val Met Asn Ala Gln Ala Lys Lys Ser Leu Asp Gln
                85                  90                  95
Asp Pro Val Val Arg Ala Gln Glu Ile Lys Thr Lys Ile Lys Glu Leu
```

243

```
                    100                    105                    110
      Asn Asn Thr Cys Glu Pro Val Val Thr Gln Pro Lys Pro Lys Ile Glu
              115                    120                    125
      Ser Pro Lys Leu Glu Arg Thr Pro Asn Gly Pro Asn Ile Asp Lys Lys
5             130                    135                    140
      Glu Glu Asp Leu Glu Asp Lys Asn Asn Phe Gly Ala Glu Pro Pro His
      145                    150                    155                    160
      Gln Asn Gly Glu Cys Tyr Pro Asn Glu Lys Asn Ser Val Asn Met Asp
                      165                    170                    175
10    Leu Asp


          <210> 678
          <211> 215
15        <212> PRT
          <213> Homo sapiens


          <400> 678
      Glu Asn Glu Met Ser Ser Glu Ala Asp Met Glu Cys Leu Asn Gln Arg
20    1               5                    10                    15
      Pro Pro Glu Asn Pro Asp Thr Asp Lys Asn Val Gln Gln Asp Asn Ser
              20                    25                    30
      Glu Ala Gly Thr Gln Pro Gln Val Gln Thr Asp Ala Gln Gln Thr Ser
              35                    40                    45
25    Gln Ser Pro Pro Ser Pro Glu Leu Thr Ser Glu Glu Asn Lys Ile Pro
          50                    55                    60
      Asp Ala Asp Lys Ala Asn Glu Lys Lys Val Asp Gln Pro Pro Glu Ala
      65                    70                    75                    80
      Lys Lys Pro Lys Ile Lys Val Val Asn Val Glu Leu Pro Ile Glu Ala
30                    85                    90                    95
      Asn Leu Val Trp Gln Leu Gly Lys Asp Leu Leu Asn Met Tyr Ile Glu
                  100                    105                    110
      Thr Glu Gly Lys Met Ile Met Gln Asp Lys Leu Glu Lys Glu Arg Asn
              115                    120                    125
35    Asp Ala Lys Asn Ala Val Glu Glu Tyr Val Tyr Glu Phe Arg Asp Lys
          130                    135                    140
      Leu Cys Gly Pro Tyr Glu Lys Phe Ile Cys Glu Gln Asp His Gln Asn
      145                    150                    155                    160
      Phe Leu Arg Leu Leu Thr Glu Thr Glu Asp Trp Leu Tyr Glu Glu Gly
40                    165                    170                    175
      Glu Asp Gln Ala Lys Gln Ala Tyr Val Asp Lys Leu Glu Glu Leu Met
                  180                    185                    190
      Lys Ile Gly Thr Pro Val Lys Val Arg Phe Gln Glu Ala Glu Arg Thr
                  195                    200                    205
45    Ala Gln Lys Cys Leu Lys Asn
          210                    215


          <210> 679
          <211> 233
50        <212> PRT
          <213> Homo sapiens


          <400> 679
      Ser Asp Pro Gln Gly Val Pro Tyr Pro Glu Ala Lys Ile Gly Arg Phe
55    1               5                    10                    15
      Val Val Gln Asn Val Ser Ala Gln Lys Asp Gly Glu Lys Ser Arg Val
              20                    25                    30
      Lys Val Lys Val Arg Val Asn Thr His Gly Ile Phe Thr Ile Ser Thr
              35                    40                    45
60    Ala Ser Met Val Glu Lys Val Pro Thr Glu Glu Asn Glu Met Ser Ser
          50                    55                    60
      Glu Ala Asp Met Glu Cys Leu Asn Gln Arg Pro Pro Glu Asn Pro Asp
      65                    70                    75                    80
```

244

```
           Thr Asp Lys Asn Val Gln Gln Asp Asn Ser Glu Ala Gly Thr Gln Pro
                           85                  90                  95
           Gln Val Gln Thr Asp Ala Gln Gln Thr Ser Gln Ser Pro Pro Ser Pro
                       100                 105                 110
  5        Glu Leu Thr Ser Glu Glu Asn Lys Ile Pro Asp Ala Asp Lys Ala Asn
                       115                 120                 125
           Glu Lys Lys Val Asp Gln Pro Pro Glu Ala Lys Lys Pro Lys Ile Lys
                   130                 135                 140
           Val Val Asn Val Glu Leu Pro Ile Glu Ala Asn Leu Val Trp Gln Leu
  10       145                 150                 155                 160
           Gly Lys Asp Leu Leu Asn Met Tyr Ile Glu Thr Glu Gly Lys Met Ile
                           165                 170                 175
           Met Gln Asp Lys Leu Glu Lys Glu Arg Asn Asp Ala Lys Asn Ala Val
                       180                 185                 190
  15       Glu Glu Tyr Val Tyr Glu Phe Arg Asp Lys Leu Cys Gly Pro Tyr Glu
                       195                 200                 205
           Lys Phe Ile Cys Glu Gln Asp His Gln Lys Phe Phe Glu Asp Ser Ser
                   210                 215                 220
           Gln Lys Thr Gly Arg Thr Gly Leu Phe
  20       225                 230


                   <210> 680
                   <211> 471
                   <212> PRT
  25               <213> Homo sapiens


                   <400> 680
           Leu Asp Met Ala Pro Glu Ile Asn Leu Pro Gly Pro Met Ser Leu Ile
           1               5                   10                  15
  30       Asp Asn Thr Lys Gly Gln Leu Val Val Asn Pro Glu Ala Leu Lys Ile
                       20                  25                  30
           Leu Ser Ala Ile Thr Gln Pro Val Val Val Val Ala Ile Val Gly Leu
                       35                  40                  45
           Tyr Arg Thr Gly Lys Ser Tyr Leu Met Asn Lys Leu Ala Gly Lys Lys
  35       50                  55                  60
           Asn Gly Phe Ser Leu Gly Ser Thr Val Lys Ser His Thr Lys Gly Ile
           65                  70                  75                  80
           Trp Met Trp Xaa Val Pro His Pro Lys Lys Pro Glu His Thr Leu Val
                           85                  90                  95
  40       Leu Leu Asp Thr Glu Gly Leu Gly Asp Ile Glu Lys Gly Asp Asn Glu
                       100                 105                 110
           Asn Asp Ser Trp Ile Phe Ala Leu Ala Ile Leu Leu Ser Ser Thr Phe
                       115                 120                 125
           Val Tyr Asn Ser Met Gly Thr Ile Asn Gln Gln Ala Met Asp Gln Leu
  45       130                 135                 140
           His Tyr Val Thr Glu Leu Thr Asp Arg Ile Lys Ala Asn Ser Ser Pro
           145                 150                 155                 160
           Gly Asn Asn Ser Val Asp Asp Ser Ala Asp Phe Val Ser Phe Phe Pro
                       165                 170                 175
  50       Ala Phe Val Trp Thr Leu Arg Asp Phe Thr Leu Glu Leu Glu Val Asp
                       180                 185                 190
           Gly Glu Pro Ile Thr Ala Asp Asp Tyr Leu Glu Leu Ser Leu Lys Leu
                       195                 200                 205
           Arg Lys Gly Thr Asp Lys Lys Ser Lys Ser Phe Asn Asp Pro Arg Leu
  55       210                 215                 220
           Cys Ile Arg Lys Phe Phe Pro Lys Arg Lys Cys Phe Val Phe Asp Trp
           225                 230                 235                 240
           Pro Ala Pro Lys Lys Tyr Leu Ala His Leu Glu Gln Leu Lys Glu Glu
                       245                 250                 255
  60       Glu Leu Asn Pro Asp Phe Ile Glu Gln Val Ala Glu Phe Cys Ser Tyr
                       260                 265                 270
           Ile Leu Ser His Ser Asn Val Lys Thr Leu Ser Gly Gly Ile Ala Val
                   275                 280                 285
                                   245
```

```
Asn Gly Pro Arg Leu Glu Ser Leu Val Leu Thr Tyr Val Asn Ala Ile
    290             295             300
Ser Ser Gly Asp Leu Pro Cys Met Glu Asn Ala Val Leu Ala Leu Ala
305             310             315             320
Gln Ile Glu Asn Ser Ala Ala Val Glu Lys Ala Ile Ala His Tyr Glu
                325             330             335
Gln Gln Met Gly Gln Lys Val Gln Leu Pro Thr Glu Thr Leu Gln Glu
            340             345             350
Leu Leu Asp Leu His Arg Asp Ser Glu Arg Glu Ala Ile Glu Val Phe
    355             360             365
Met Lys Asn Ser Phe Lys Asp Val Asp Gln Met Phe Gln Arg Lys Leu
    370             375             380
Gly Ala Gln Leu Glu Ala Arg Arg Asp Asp Phe Cys Lys Gln Asn Ser
385             390             395             400
Lys Ala Ser Ser Asp Cys Cys Met Ala Leu Leu Gln Asp Ile Phe Gly
            405             410             415
Pro Leu Glu Glu Asp Val Lys Gln Gly Thr Phe Ser Lys Pro Gly Gly
            420             425             430
Tyr Arg Leu Phe Thr Gln Lys Leu Gln Glu Leu Lys Asn Lys Ser Thr
    435             440             445
Arg Ala Lys Glu Gly Asp Thr Gly Gln Arg Gly Ala Glu Lys Ile Phe
    450             455             460
Gly Val Gln Gly Gly Cys Gly
465             470
```

```
            <210> 681
            <211> 198
            <212> PRT
            <213> Homo sapiens


            <400> 681
Leu Asp Met Ala Pro Glu Ile Asn Leu Pro Gly Pro Met Ser Leu Ile
    1           5               10              15
Asp Asn Thr Lys Gly Gln Leu Val Val Asn Pro Glu Ala Leu Lys Ile
            20              25              30
Leu Ser Ala Ile Thr Gln Pro Val Val Val Val Ala Ile Val Gly Leu
            35              40              45
Tyr Arg Thr Gly Lys Ser Tyr Leu Met Asn Lys Leu Ala Gly Lys Lys
    50              55              60
Asn Gly Phe Ser Leu Gly Ser Thr Val Lys Ser His Thr Lys Gly Ile
65              70              75              80
Trp Met Trp Xaa Val Pro His Pro Lys Lys Pro Glu His Thr Leu Val
                85              90              95
Leu Leu Asp Thr Glu Gly Leu Gly Asp Ile Glu Lys Gly Asp Asn Glu
            100             105             110
Asn Asp Ser Trp Ile Phe Ala Leu Ala Ile Leu Leu Ser Ser Thr Phe
    115             120             125
Val Tyr Asn Ser Met Gly Thr Ile Asn Gln Gln Ala Met Asp Gln Leu
    130             135             140
His Tyr Val Thr Glu Leu Thr Asp Arg Ile Lys Ala Asn Xaa Ser Pro
145             150             155             160
Gly Asn Asn Ser Val Asp Asp Ser Xaa Asp Phe Val Ser Phe Phe Pro
            165             170             175
Ala Phe Val Trp Thr Leu Lys Xaa Phe Thr Leu Glu Leu Gly Ser Arg
            180             185             190
Trp Arg Thr His His Cys
            195


            <210> 682
            <211> 147
            <212> PRT
            <213> Homo sapiens
```

```
        <400> 682
    Ser Pro Gly Ala Lys Gly Arg Gly Tyr Lys Ala Lys Glu Val Xaa Lys
    1               5                   10                  15
    Lys Tyr Leu Glu Ser Lys Xaa Asp Val Ala Asp Ala Leu Leu Gln Thr
              20              25                  30
    Asp Gln Ser Leu Ser Glu Lys Glu Lys Ala Ile Glu Val Glu Arg Ile
              35              40                  45
    Lys Ala Glu Ser Ala Glu Ala Ala Lys Lys Met Leu Glu Glu Ile Xaa
          50              55                  60
    Lys Lys Asn Glu Glu Met Met Glu Gln Lys Glu Lys Ser Tyr Gln Glu
    65              70                  75                  80
    His Val Lys Gln Leu Thr Glu Lys Met Glu Arg Asp Arg Ala Gln Leu
                  85              90                  95
    Met Ala Glu Gln Glu Lys Thr Leu Ala Leu Lys Leu Gln Glu Gln Glu
              100             105                 110
    Arg Leu Leu Lys Glu Gly Phe Glu Asn Glu Ser Lys Arg Leu Gln Lys
              115             120                 125
    Asp Ile Trp Asp Ile Gln Met Arg Ser Lys Ser Leu Glu Pro Ile Cys
          130             135                 140
    Asn Ile Leu
    145


        <210> 683
        <211> 105
        <212> PRT
        <213> Homo sapiens


        <400> 683
    Glu Arg Gly Ser Ser Leu Ala Leu Pro Leu Thr Gly Pro Cys Pro Ser
    1               5                   10                  15
    Pro Ser Ser Gln Ser Ile Val Ser His Val Pro Asp Asn Ser Ser Leu
              20              25                  30
    Ser Val Pro Ser Ser Pro His Ser Ser Xaa Val Phe Pro Pro Thr Phe
              35              40                  45
    Ser Leu Gln Leu Leu Gln Ile Gln Pro Leu Tyr Val Pro Leu Gln Ser
          50              55                  60
    Leu Phe Pro Phe Leu Arg Val Thr Asp Gln Ser Val Glu Val His Gln
    65              70                  75                  80
    Pro His Pro Xaa Trp Thr Pro Asn Ile Phe Ser Xaa Pro Leu Trp Pro
          85                  90                  95
    Cys Ile Pro Phe Leu Trp His Leu Gly
              100             105


        <210> 684
        <211> 274
        <212> PRT
        <213> Homo sapiens


        <400> 684
    Ile Leu Leu Ser Ser Thr Phe Val Tyr Asn Ser Met Gly Thr Ile Asn
    1               5                   10                  15
    Gln Gln Ala Met Asp Gln Leu His Tyr Val Thr Glu Leu Thr Asp Arg
              20              25                  30
    Ile Lys Ala Asn Ser Ser Pro Gly Asn Asn Ser Val Asp Asp Ser Ala
          35                  40                  45
    Asp Phe Val Ser Phe Phe Pro Ala Phe Val Trp Thr Leu Arg Asp Phe
          50              55                  60
    Thr Leu Glu Leu Glu Val Asp Gly Glu Pro Ile Thr Ala Asp Asp Tyr
    65              70                  75                  80
    Leu Glu Leu Ser Leu Lys Leu Arg Lys Gly Thr Asp Lys Lys Ser Lys
                  85              90                  95
    Ser Phe Asn Asp Pro Arg Leu Cys Ile Arg Lys Phe Phe Pro Lys Arg
              100                 105                 110
```

247

```
          Lys Cys Phe Val Phe Asp Trp Pro Ala Pro Lys Lys Tyr Leu Ala His
              115                 120                 125
          Leu Glu Gln Leu Lys Glu Glu Glu Leu Asn Pro Asp Phe Ile Glu Gln
              130                 135                 140
   5      Val Ala Glu Phe Cys Ser Tyr Ile Leu Ser His Ser Asn Val Lys Thr
          145                 150                 155                 160
          Leu Ser Gly Gly Ile Ala Val Asn Gly Pro Arg Leu Glu Ser Leu Val
                          165                 170                 175
          Leu Thr Tyr Val Asn Ala Ile Gly Ser Gly Asp Leu Pro Cys Met Glu
  10                      180                 185                 190
          Asn Ala Val Leu Ala Leu Ala Gln Ile Glu Glu Leu Ser Pro Gln Xaa
                          195                 200                 205
          Lys Arg Leu Leu Xaa Thr Tyr Glu Gln Gln Asp Gly Ala Arg Arg Gly
              210                 215                 220
  15      Ser Cys Pro Pro Glu Thr Leu Pro Gly Ala Xaa Gly Thr Cys Xaa Xaa
          225                 230                 235                 240
          Thr Val Arg Lys Xaa Ala Ile Glu Val Phe Ile Glu Xaa Thr Phe Phe
                          245                 250                 255
          Lys Asp Val Gly Pro Asn Gly Ser Lys Xaa Lys Leu Gly Gly Pro Ile
  20                      260                 265                 270
          Trp Glu


          <210> 685
  25      <211> 120
          <212> PRT
          <213> Homo sapiens


          <400> 685
  30      Cys Thr Xaa Thr Ala Asp Gln Xaa Leu Ser Glu Lys Glu Lys Ala Ile
            1               5                  10                  15
          Glu Val Glu Arg Ile Lys Val Xaa Ser Ala Glu Ala Ala Lys Lys Met
                          20                  25                  30
          Leu Glu Glu Ile Gln Lys Lys Asn Glu Glu Met Met Asp Gln Lys Glu
  35                  35                  40                  45
          Lys Xaa Tyr Gln Glu His Val Xaa Gln Leu Xaa Xaa Xaa Met Xaa Arg
              50                  55                  60
          Xaa Arg Ala Gln Leu Met Ala Glu Gln Xaa Lys Pro Leu Xaa Xaa Lys
          65                  70                  75                  80
  40      Leu Gln Glu Gln Glu Xaa Leu Xaa Lys Glu Gly Xaa Glu Asn Glu Ser
                          85                  90                  95
          Lys Arg Xaa Gln Lys Asp Ile Trp Asp Ile Gln Met Arg Ser Lys Ser
                          100                 105                 110
          Leu Glu Pro Ile Cys Asn Ile Leu
  45                  115                 120


          <210> 686
          <211> 205
          <212> PRT
  50      <213> Homo sapiens


          <400> 686
          Pro Met Ser Leu Ile Asp Asn Thr Lys Gly Gln Leu Val Val Asn Pro
            1               5                  10                  15
  55      Glu Ala Leu Lys Ile Leu Ser Ala Ile Thr Gln Pro Val Val Val Val
                          20                  25                  30
          Ala Ile Val Gly Leu Tyr Arg Thr Gly Lys Ser Tyr Leu Met Asn Lys
                          35                  40                  45
          Leu Ala Gly Lys Lys Asn Gly Phe Ser Leu Gly Ser Thr Val Lys Ser
  60          50                  55                  60
          His Thr Lys Gly Ile Trp Met Trp Cys Val Pro His Pro Lys Lys Pro
          65                  70                  75                  80
          Glu His Thr Leu Val Leu Leu Asp Thr Glu Gly Leu Gly Asp Ile Glu
```

```
                                 85                     90                        95
          Lys Gly Asp Asn Glu Asn Asp Ser Trp Ile Phe Ala Leu Ala Ile Leu
                      100                     105                     110
          Leu Ser Ser Thr Phe Val Tyr Asn Ser Met Gly Thr Ile Asn Gln Gln
   5                  115                     120                     125
          Ala Met Asp Gln Leu His Tyr Val Thr Glu Leu Thr Asp Arg Ile Lys
                      130                     135                     140
          Ala Asn Ser Ser Pro Gly Asn Asn Ser Val Asp Asp Ser Ala Asp Phe
                      145                     150                     155                     160
  10      Val Ser Phe Phe Pro Ala Phe Val Trp Thr Leu Arg Asp Phe Thr Leu
                          165                     170                     175
          Glu Leu Glu Val Asp Gly Glu Pro Ile Thr Ala Asp Asp Tyr Leu Glu
                      180                     185                     190
          Leu Ser Leu Lys Leu Arg Lys Gly Thr Asp Lys Glu Lys
  15                  195                     200                     205


                  <210> 687
                  <211> 111
                  <212> PRT
  20              <213> Homo sapiens


                  <400> 687
          Lys Arg Leu Ser Thr Gly Thr Ile Phe Leu Thr Gln Glu Val Pro Val
          1                   5                   10                      15
  25      Xaa Xaa Ser Lys Cys Arg Ser Xaa Arg Ile Ser Xaa Pro Arg Val Pro
                      20                      25                      30
          Lys Glu Gly Asp Thr Gly Asn Leu Pro Ala Lys Glu Val Xaa Lys Asn
                      35                      40                      45
          Ile Trp Ser Pro Arg Xaa Met Gly Xaa Cys Thr Xaa Thr Asp Cys Gln
  30              50                      55                      60
          Ser Leu Phe Lys Lys Glu Lys Ala Ile Glu Val Asp Gly Ile Lys Ala
          65                      70                      75                      80
          Glu Phe Ala Glu Ala Ala Lys Lys Met Leu Glu Glu Xaa Gln Lys Lys
                      85                      90                      95
  35      Asn Glu Glu Met Met Ala Arg Lys Arg Val Ile Arg Asn Met
                      100                     105                     110


                  <210> 688
                  <211> 115
  40              <212> PRT
                  <213> Homo sapiens


                  <400> 688
          Lys Val Thr Asp Ser Leu Xaa Lys Cys Ile Xaa Pro Xaa Ser Leu Asp
  45      1                   5                   10                      15
          Ser Lys Tyr Phe Phe Xaa Pro Leu Trp Pro Gly Gly Tyr Leu Tyr Pro
                      20                      25                      30
          Leu Pro Trp Ala Pro Trp Xaa Asp Leu Phe Xaa Ser Ser Cys Thr Leu
                      35                      40                      45
          Xaa Lys Xaa Pro Glu Pro Pro Gly Leu Lys Lys Trp Ser Leu Leu Thr
  50              50                      55                      60
          Ile Phe Phe Lys Arg Ala Gln Xaa Xaa Leu Glu Val Lys Xaa Cys His
          65                      70                      75                      80
          Lys Ser Asp Asp Ala Phe Gly Ile Leu Leu Thr Lys Xaa Ile Xaa Pro
  55                          85                      90                      95
          Leu Val Xaa Thr Gly Ala Leu Asn Ser Xaa Gly Gln Xaa Gly Pro His
                      100                     105                     110
          Pro Trp Lys
                      115
  60
                  <210> 689
                  <211> 133
                  <212> PRT
```

```
        <213> Homo sapiens

        <400> 689
    Glu Arg Gly Ser Ser Leu Ala Leu Pro Leu Thr Gly Pro Cys Pro Ser
 5   1           5               10              15
    Pro Ser Ser Gln Ser Ile Val Ser His Val Pro Asp Asn Ser Ser Leu
                20              25              30
    Ser Gly His His Leu Leu Ile Leu Leu Leu Xaa Phe Leu Gln His Phe
                35              40              45
10  Leu Cys Ser Phe Cys Arg Phe Ser Leu Tyr Thr Val Pro Leu Gln Ser
            50              55              60
    Leu Phe Pro Phe Leu Arg Val Thr Asp Gln Val Cys Arg Ser Ala Ser
    65              70              75              80
    Thr Thr Ser Ser Leu Asp Ser Lys Tyr Phe Phe Ser Thr Ser Leu Ala
15              85              90              95
    Xaa Ile Pro Xaa Leu Gly Pro Xaa Xaa Leu Ile Leu Gln Leu Leu Gln
                100             105             110
    Leu Leu Ser Lys Lys Thr Xaa Thr Xaa Trp Val Lys Lys Arg Xaa Leu
                115             120             125
20  Leu Asp Ile Phe Phe
                130


        <210> 690
        <211> 112
25      <212> PRT
        <213> Homo sapiens


        <400> 690
    Leu Ala Gly Gly Phe Pro Glu Glu Thr Ser Xaa Pro Gly Xaa Lys Lys
30   1           5               10              15
    Leu Thr Pro Xaa Lys Val Xaa Pro Leu Xaa Xaa Gln Trp Pro Lys Gly
                20              25              30
    Xaa Cys Pro Gly Thr Pro Xaa Ser Cys Gly Xaa Pro Gln Xaa Ser Lys
                35              40              45
35  Lys Gly Xaa Xaa Ser Phe His Xaa Asn Xaa Phe Lys Xaa Gly Pro Lys
            50              55              60
    Cys Ser Lys Xaa Ile Arg Ala Gln Trp Lys Gln Xaa Xaa Met Xaa Phe
    65              70              75              80
    Val Thr Glu Phe Gln Ser Phe Ile Arg Leu Trp Gln Ala Leu Leu Gln
40              85              90              95
    Xaa Ile Phe Gly Pro Phe Arg Arg Arg Cys Gln Ala Xaa Thr Phe Phe
                100             105             110


        <210> 691
45      <211> 93
        <212> PRT
        <213> Homo sapiens


        <400> 691
50  Ser Leu Pro Gln Ser Asp Glu Ala Leu Glu Phe Cys Tyr Lys Xaa His
     1           5               10              15
    Xaa Xaa Leu Leu Pro Leu Gly Pro Asn Xaa Phe Gly Thr Phe Gly Pro
                20              25              30
    Xaa Leu Glu Xaa Ile Xaa Met Lys Thr Xaa Xaa Ala Phe Phe Thr Xaa
55              35              40              45
    Leu Gly Xaa Ala Thr Thr Xaa Gly Gly Ser Arg Ala Xaa Ala Leu Trp
            50              55              60
    Pro Leu Xaa Xaa Lys Gly Xaa Asn Phe Xaa Gly Gly Glu Phe Phe Xaa
    65              70              75              80
60  Ala Arg Xaa Thr Gly Phe Leu Arg Glu Thr Pro Cys Gln
                85              90


        <210> 692
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2 5 6

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         <211> 194
         <212> PRT
         <213> Homo sapiens

         <400> 692
Lys Lys Tyr Leu Ala His Leu Glu Gln Leu Lys Glu Glu Glu Leu Asn
1               5               10                  15
Pro Asp Phe Ile Glu Gln Val Ala Glu Phe Cys Ser Tyr Ile Leu Ser
            20              25                  30
His Ser Asn Val Lys Thr Leu Ser Gly Leu Glu Ser Leu Val Leu Thr
        35              40                  45
Tyr Val Asn Ala Ile Ser Ser Gly Asp Leu Pro Cys Met Glu Asn Ala
    50              55                  60
Val Leu Ala Leu Ala Gln Ile Glu Asn Ser Ala Ala Val Glu Lys Ala
65                  70                  75                  80
Ile Ala His Tyr Glu Gln Gln Met Gly Gln Lys Val Gln Leu Pro Thr
                85                  90                  95
Glu Thr Leu Gln Glu Leu Leu Asp Leu His Arg Asp Ser Glu Arg Glu
            100                 105                 110
Ala Ile Glu Val Phe Met Lys Asn Ser Phe Lys Asp Val Asp Gln Met
            115                 120                 125
Phe Gln Arg Lys Leu Gly Ala Gln Leu Glu Ala Arg Arg Asp Asp Phe
    130             135                 140
Cys Lys Gln Asn Ser Lys Ala Ser Ser Asp Cys Cys Met Ala Leu Leu
145             150                 155                 160
Gln Asp Ile Phe Gly Pro Leu Glu Glu Asp Val Lys Gln Gly Thr Phe
            165                 170                 175
Ser Lys Pro Gly Gly Tyr Arg Leu Phe Thr Gln Lys Leu Gln Gly Ala
            180                 185                 190
Glu Glu


         <210> 693
         <211> 130
         <212> PRT
         <213> Homo sapiens

         <400> 693
Pro Pro Gly Asn Xaa Pro Glu Val Val Ala Leu Xaa Arg Ala Ser Lys
1               5               10                  15
Lys Gly Xaa Xaa Ser Xaa Asn Lys Asp Phe Phe Lys Xaa Gly Pro Lys
            20              25                  30
Cys Ser Arg Glu Ile Arg Gly Pro Val Glu Ala Xaa Arg Asn Xaa Phe
        35              40                  45
Cys Ser Gln Ile Pro Lys Leu Ile Arg Leu Trp Xaa Gly Phe Thr Ser
    50              55                  60
Arg Ile Tyr Trp Ala Xaa Xaa Lys Lys Met Ser Ser Arg Glu His Phe
65                  70                  75                  80
Leu Asn Pro Glu Gly Ser Gly Phe Phe Thr Gln Lys Leu Gln Glu Leu
                85                  90                  95
Lys Asn Lys Ser Thr Arg Ala Lys Lys Gly Ile Gln Ala Lys Glu Val
            100                 105                 110
Leu Lys Lys Tyr Leu Glu Ser Lys Glu Asp Val Ala Asp Ala Leu Leu
            115                 120                 125
Gln Thr
130


         <210> 694
         <211> 89
         <212> PRT
         <213> Homo sapiens

         <400> 694
```
251

```
           Val Lys Lys Pro Glu Pro Ser Gly Leu Arg Lys Cys Ser Leu Leu Asp
           1               5                   10                  15
           Ile Phe Xaa Xaa Xaa Ala Gln Tyr Ile Leu Glu Val Lys Xaa Cys His
                       20                  25                  30
  5        Asn Leu Met Ser Phe Gly Ile Trp Leu Gln Lys Xaa Phe Xaa Leu Ala
                   35                  40                  45
           Ser Thr Gly Pro Leu Ile Ser Leu Glu His Leu Gly Pro Xaa Leu Lys
                   50                  55                  60
           Lys Ser Leu Leu Xaa Leu Xaa Xaa Pro Phe Leu Leu Ala Leu Xaa Arg
  10       65                  70                  75                  80
           Ala Thr Thr Ser Gly Xaa Phe Pro Gly
                           85


           <210> 695
  15       <211> 203
           <212> PRT
           <213> Homo sapiens


           <400> 695
  20       Pro Lys Lys Tyr Leu Ala His Leu Glu Gln Leu Lys Glu Glu Glu Leu
           1               5                   10                  15
           Asn Pro Asp Phe Ile Glu Gln Val Ala Glu Phe Cys Ser Tyr Ile Leu
                       20                  25                  30
           Ser His Ser Asn Val Lys Thr Leu Ser Gly Gly Ile Pro Val Asn Gly
  25                35                  40                  45
           Pro Arg Leu Glu Ser Leu Val Leu Thr Tyr Val Asn Ala Ile Ser Ser
                   50                  55                  60
           Gly Asp Leu Pro Cys Met Glu Asn Ala Val Leu Ala Leu Ala Gln Ile
           65                  70                  75                  80
  30       Glu Asn Ser Ala Ala Val Glu Lys Ala Ile Ala His Tyr Glu Gln Gln
                           85                  90                  95
           Met Gly Gln Lys Val Gln Leu Pro Thr Glu Thr Leu Gln Glu Leu Leu
                       100                 105                 110
           Asp Leu His Arg Asp Ser Glu Arg Glu Ala Ile Glu Val Phe Met Lys
  35                115                 120                 125
           Asn Ser Phe Lys Asp Val Asp Gln Met Phe Gln Arg Lys Leu Gly Ala
                   130                 135                 140
           Gln Leu Glu Ala Arg Arg Asp Asp Phe Cys Lys Gln Asn Ser Lys Ala
           145                 150                 155                 160
  40       Ser Ser Asp Cys Cys Met Ala Leu Leu Gln Asp Ile Phe Gly Pro Leu
                           165                 170                 175
           Glu Glu Asp Val Lys Gln Gly Thr Phe Ser Lys Pro Gly Gly Tyr Arg
                       180                 185                 190
           Leu Phe Thr Gln Lys Leu Ala Gly Ala Glu Glu
  45                195                 200


           <210> 696
           <211> 159
           <212> PRT
  50       <213> Homo sapiens


           <400> 696
           Gly Thr Ile Asn Gln Gln Ala Met Asp Gln Leu His Tyr Val Thr Glu
           1               5                   10                  15
  55       Leu Thr Asp Arg Ile Lys Ala Asn Ser Ser Pro Gly Asn Asn Ser Val
                       20                  25                  30
           Asp Asp Ser Ala Asp Phe Val Ser Phe Phe Pro Ala Phe Val Trp Thr
                   35                  40                  45
           Leu Arg Asp Phe Thr Leu Glu Leu Glu Val Asp Gly Glu Pro Ile Thr
  60                50                  55                  60
           Ala Asp Asp Tyr Leu Glu Leu Ser Leu Lys Leu Arg Lys Gly Thr Asp
           65                  70                  75                  80
           Xaa Lys Ser Lys Ser Phe Asn Asp Pro Arg Leu Cys Ile Arg Lys Phe
```

252

```
                           85                    90                    95
        Phe Pro Lys Arg Lys Cys Phe Val Phe Asp Trp Pro Ala Pro Lys Lys
                       100                   105                   110
        Tyr Leu Ala His Leu Glu Gln Leu Lys Glu Glu Glu Leu Asn Pro Asp
 5                 115                   120                   125
        Phe Ile Glu Gln Xaa Ala Glu Phe Cys Ser Tyr Ile Leu Xaa Xaa Ser
               130                   135                   140
        Asn Val Lys Thr Leu Ser Gly Xaa Ile Pro Ala Met Gly Leu Val
        145                   150                   155
10
               <210> 697
               <211> 194
               <212> PRT
               <213> Homo sapiens
15
               <400> 697
        Tyr Gly Gln Gly Ile Asn Pro Ile Ser Arg Leu Ala Gln Ile Gln Gln
         1                   5                    10                   15
        Ala Lys Lys Glu Lys Glu Pro Glu Tyr Thr Leu Leu Thr Glu Arg Gly
20                     20                   25                   30
        Leu Pro Arg Arg Arg Glu Phe Val Met Gln Val Lys Val Gly Asn His
                       35                   40                   45
        Thr Ala Glu Gly Thr Gly Thr Asn Lys Lys Val Ala Lys Arg Asn Ala
                   50                   55                   60
25      Ala Glu Asn Met Leu Glu Ile Leu Gly Phe Lys Val Pro Gln Ala Gln
        65                   70                   75                   80
        Pro Thr Lys Pro Ala Leu Lys Ser Glu Glu Lys Thr Pro Ile Lys Lys
                       85                   90                   95
        Pro Gly Asp Gly Arg Lys Val Thr Phe Phe Glu Pro Gly Ser Gly Asp
30                    100                  105                   110
        Glu Asn Gly Thr Ser Asn Lys Glu Asp Glu Phe Arg Met Pro Tyr Leu
                      115                  120                   125
        Ser His Gln Gln Leu Pro Ala Gly Ile Leu Pro Met Val Pro Glu Val
                  130                  135                   140
35      Ala Gln Ala Val Gly Val Ser Gln Gly His His Thr Lys Asp Phe Thr
        145                  150                   155                 160
        Arg Ala Ala Pro Asn Pro Ala Lys Ala Thr Val Thr Ala Met Ile Ala
                      165                  170                   175
        Arg Glu Leu Leu Tyr Gly Gly Thr Ser Pro Thr Ala Glu Thr Ile Leu
40                    180                  185                   190
        Lys Glu


               <210> 698
45             <211> 92
               <212> PRT
               <213> Homo sapiens


               <400> 698
50      Gln Tyr Arg Ala Leu Trp Lys Ile Thr Leu Gln Val Tyr Met Asp Tyr
         1                   5                    10                   15
        Met Glu Ile Ile Ser Cys Ser Val Val Lys Ala Lys Ser Ser Arg Ala
                       20                   25                   30
        Ile Cys Ile Asp Thr Gln Cys Phe Leu Ile Ile Phe Lys Thr Glu Ile
55                     35                   40                   45
        Lys Val His Leu Ser Pro Val Cys Ile Asn Lys Asn Lys Asn Glu Ile
                   50                   55                   60
        Lys Met Glu Pro Asn Asp His Leu Lys Phe Lys Ile Pro Lys Leu Ser
        65                   70                   75                   80
60      Asn Leu Tyr Asn Cys Gly Arg Leu Ile Gln Gly Phe
                           85                   90

               <210> 699
```

```
        <211> 395
        <212> PRT
        <213> Homo sapiens

5       <400> 699
   His Lys Ser Asp Leu Pro Ala Phe Ser Ala Glu Val Glu Glu Glu Ser
   1               5                   10                  15
   Glu Ala Gly Lys Glu Ser Glu Glu Thr Glu Thr Lys Gln Thr Leu Lys
               20                  25                  30
10 Glu Phe Arg Cys Gln Val Ser Asp Cys Ser Arg Ile Phe Gln Ala Ile
               35                  40                  45
   Thr Gly Leu Ile Gln His Tyr Met Lys Leu His Glu Met Thr Pro Glu
               50                  55                  60
   Glu Ile Glu Ser Met Thr Ala Ser Val Asp Val Gly Lys Phe Pro Cys
15 65                  70                  75                  80
   Asp Gln Leu Glu Cys Lys Ser Ser Phe Thr Thr Tyr Leu Asn Tyr Val
               85                  90                  95
   Val His Leu Glu Ala Asp His Gly Ile Gly Leu Arg Ala Ser Lys Thr
               100                 105                 110
20 Glu Glu Asp Gly Val Tyr Lys Cys Asp Cys Glu Gly Cys Asp Arg Ile
               115                 120                 125
   Tyr Ala Thr Arg Ser Asn Leu Leu Arg His Ile Phe Asn Lys His Asn
               130                 135                 140
   Asp Lys His Lys Ala His Leu Ile Arg Pro Arg Arg Leu Thr Pro Gly
25 145                 150                 155                 160
   Gln Glu Asn Met Ser Ser Lys Ala Asn Gln Glu Lys Ser Lys Ser Lys
               165                 170                 175
   His Arg Gly Thr Lys His Ser Arg Cys Gly Lys Glu Gly Ile Lys Met
               180                 185                 190
30 Pro Lys Thr Lys Arg Lys Lys Asn Asn Leu Glu Asn Lys Asn Ala
               195                 200                 205
   Lys Ile Val Gln Ile Glu Glu Asn Lys Pro Tyr Ser Leu Lys Arg Gly
               210                 215                 220
   Lys His Val Tyr Ser Ile Lys Ala Arg Asn Asp Ala Leu Ser Glu Cys
35 225                 230                 235                 240
   Thr Ser Arg Phe Val Thr Gln Tyr Pro Cys Met Ile Lys Gly Cys Thr
               245                 250                 255
   Ser Val Val Thr Ser Glu Ser Asn Ile Ile Arg His Tyr Lys Cys His
          .    260                 265                 270
40 Lys Leu Ser Lys Ala Phe Thr Ser Gln His Arg Asn Leu Leu Ile Val
               275                 280                 285
   Phe Lys Arg Cys Cys Asn Ser Gln Val Lys Glu Thr Ser Glu Gln Glu
               290                 295                 300
   Gly Ala Lys Asn Asp Val Lys Asp Ser Asp Thr Cys Val Ser Glu Ser
45 305                 310                 315                 320
   Asn Asp Asn Ser Arg Thr Thr Ala Thr Val Ser Gln Lys Glu Val Glu
               325                 330                 335
   Lys Asn Glu Lys Asp Glu Met Asp Glu Leu Thr Glu Leu Phe Ile Thr
               340                 345                 350
50 Lys Leu Ile Asn Glu Asp Ser Thr Ser Val Glu Thr Gln Ala Asn Thr
               355                 360                 365
   Ser Ser Asn Val Ser Asn Asp Phe Gln Gly Arg Tyr Leu Cys Gln Ser
               370                 375                 380
   Glu Arg Gln Lys Ala Ser Asn Leu Lys Lys Ser
55 385                 390                 395
          .

        <210> 700
        <211> 209
        <212> PRT
60      <213> Homo sapiens

        <400> 700
   Lys Glu Gly Ile Lys Met Pro Lys Thr Lys Arg Lys Lys Lys Asn Asn
```

254

```
          1                   5                   10                  15
        Leu Glu Asn Lys Asn Ala Lys Ile Val Gln Ile Glu Glu Asn Lys Pro
                        20                  25                  30
        Tyr Ser Leu Lys Arg Gly Lys His Val Tyr Ser Ile Lys Ala Arg Asn
  5                 35                  40                  45
        Asp Ala Leu Ser Glu Cys Thr Ser Arg Phe Val Thr Gln Tyr Pro Cys
                50                  55                  60
        Met Ile Lys Gly Cys Thr Ser Val Val Thr Ser Glu Ser Asn Ile Ile
        65                  70                  75                  80
  10    Arg His Tyr Lys Cys His Lys Leu Ser Lys Ala Phe Thr Ser Gln His
                        85                  90                  95
        Arg Asn Leu Leu Ile Val Phe Lys Arg Cys Cys Asn Ser Gln Val Lys
                    100                 105                 110
        Glu Thr Ser Glu Gln Glu Gly Ala Lys Asn Asp Val Lys Asp Ser Asp
  15                115                 120                 125
        Thr Cys Val Ser Glu Ser Asn Asp Asn Ser Arg Thr Thr Ala Thr Val
                    130                 135                 140
        Ser Gln Lys Glu Val Glu Lys Asn Glu Lys Asp Glu Met Asp Glu Leu
        145                 150                 155                 160
  20    Thr Glu Leu Phe Ile Thr Lys Leu Ile Asn Glu Asp Ser Thr Ser Val
                        165                 170                 175
        Glu Thr Gln Ala Asn Thr Ser Ser Asn Val Ser Asn Asp Phe Gln Gly
                    180                 185                 190
        Arg Tyr Leu Cys Gln Ser Glu Arg Gln Lys Ala Ser Asn Leu Lys Lys
  25                195                 200                 205
        Ser


            <210> 701
  30        <211> 139
            <212> PRT
            <213> Homo sapiens


            <400> 701
  35    Phe Phe Xaa Phe Val Pro Xaa Ser Xaa Asn Gln Tyr Phe Phe Phe Glu
          1                 5                   10                  15
        Phe Glu Arg Xaa Pro Phe Phe Cys Phe Pro Val Phe Gly Arg Val Phe
                        20                  25                  30
        Gly Arg Ile Phe Phe Trp Val Xaa Leu Gln Thr Xaa Gln Lys Phe Gln
  40            35                  40                  45
        Lys Arg Xaa Phe Asn Ser His Trp Leu Lys Arg Ala Pro Val Lys Glu
                50                  55                  60
        Ala Glu Cys Ser Ser Met Val Glu Cys Gln Gln Gln Phe Xaa Phe Leu
        65                  70                  75                  80
  45    Xaa Gly Thr Leu Leu Asn Ser Ala Ala Asp Ala Gly Ser Ala Phe Ser
                        85                  90                  95
        Thr Phe Leu Phe Leu Phe Cys Glu Thr Phe Phe Ser Xaa Ile Asn Ser
                    100                 105                 110
        Ser Ser Asn Tyr Trp Leu Phe Val Phe Arg Thr Gly Arg Gly Ile Phe
  50                115                 120                 125
        Pro Glu Asn His Tyr Leu His Leu Lys Lys Tyr
            130                 135


            <210> 702
  55        <211> 135
            <212> PRT
            <213> Homo sapiens


            <400> 702
  60    Phe Ser Xaa Leu Ser Gln Xaa Xaa Leu Thr Asn Ile Phe Phe Leu Asn
          1                 5                   10                  15
        Leu Lys Gly Xaa Pro Phe Phe Val Ser Gln Tyr Ser Glu Gly Phe Leu
                        20                  25                  30
```

```
Ala Gly Phe Phe Phe Gly Phe Xaa Cys Arg Leu Xaa Lys Asn Phe Lys
        35              40              45
Lys Xaa Thr Ser Ile Pro Ile Gly Leu Lys Glu Leu Gln Ser Lys Lys
    50              55              60
Gln Asn Ala Pro Gln Trp Leu Asn Ala Asn Ser Ser Xaa Phe Phe Xaa
65              70              75              80
Thr Ala Arg Tyr Leu Thr Gln Leu Leu Met Leu Val Gln Leu Phe Gln
            85              90              95
Leu Ser Phe Phe Tyr Phe Val Arg His Phe Phe Xaa Leu Leu Thr Leu
            100             105             110
Leu Gln Ile Thr Gly Phe Leu Ser Phe Gly Leu Ala Glu Val Ser Ser
        115             120             125
Leu Lys Ile Ile Thr Tyr Ile
    130             135
```

        <210> 703
        <211> 135
        <212> PRT
        <213> Homo sapiens

        <400> 703

```
Phe Pro Leu Val Thr Ala Val Leu Ser Ile Phe Phe Leu Glu Phe Glu
1               5               10              15
Trp Asp Pro Phe Leu Phe Pro Val Phe Gly Trp Xaa Leu Gln Tyr Phe
            20              25              30
Ser Ser Ala Ser Leu Gln Thr Pro Gln Glu Thr Ser Glu Met Ile Phe
        35              40              45
Lys Ser His Trp Leu Lys Lys Ser Xaa Ser Gln Lys Asp Ala Arg Xaa
    50              55              60
Ser Ser Met Gly Xaa Met Ala Pro Ala Val Ser Xaa Ser Leu Pro Xaa
65              70              75              80
Xaa Leu Asn Ser Ala Xaa Gly Cys Trp Val Asn Leu Phe Gln Leu Phe
            85              90              95
Leu Phe Leu Phe Xaa Glu Xaa Xaa Phe Ser Leu Leu Thr Leu Phe Lys
            100             105             110
Tyr Leu Ala Phe Trp Leu Ser Asp Trp Ala Xaa Gly Phe Xaa Pro Glu
        115             120             125
Asn His Ser Leu His Leu Lys
    130             135
```

        <210> 704
        <211> 123
        <212> PRT
        <213> Homo sapiens

        <400> 704

```
Gly Val Cys Ser Glu Ala Glu Glu Lys Tyr Cys Lys Xaa His Pro Asn
1               5               10              15
Thr Gly Asn Lys Lys Gly Ser His Ser Asn Ser Arg Lys Asn Ile Asp
        20              25              30
Lys Thr Ala Val Thr Ser Gly Asn His Val Cys Pro Cys Lys Glu Ser
        35              40              45
Glu Thr Phe Val Gln Phe Ala Asn Pro Ser Gln Leu Gln Cys Ser Asp
    50              55              60
Asn Val Lys Ile Val Leu Asp Lys Asn Leu Lys Asp Cys Thr Glu Leu
65              70              75              80
Val Leu Lys Gln Leu Gln Glu Met Lys Pro Thr Val Ser Leu Lys Lys
            85              90              95
Leu Glu Val His Ser Asn Asp Pro Asp Met Ser Val Met Lys Asp Ile
            100             105             110
Ser Ile Gly Lys Ala Thr Gly Arg Gly Gln Tyr
        115             120
```

256

```
<210> 705
<211> 242
<212> PRT
<213> Homo sapiens

<400> 705
His Glu Met Thr Pro Glu Glu Ile Glu Ser Met Thr Ala Ser Val Asp
1               5                   10                  15
Val Gly Lys Phe Pro Cys Asp Gln Leu Glu Cys Lys Ser Ser Phe Thr
            20                  25                  30
Thr Tyr Leu Asn Tyr Val Val His Leu Glu Ala Asp His Gly Ile Gly
            35                  40                  45
Leu Arg Ala Ser Lys Thr Glu Glu Asp Gly Val Tyr Lys Cys Asp Cys
        50                  55                  60
Glu Gly Cys Asp Arg Ile Tyr Ala Thr Arg Ser Asn Leu Leu Arg His
65                  70                  75                  80
Ile Phe Asn Lys His Asn Asp Lys His Lys Ala His Leu Ile Arg Pro
                85                  90                  95
Arg Arg Leu Thr Pro Gly Gln Glu Asn Met Ser Ser Lys Ala Asn Gln
            100                 105                 110
Glu Lys Ser Lys Ser Lys His Arg Gly Thr Lys His Ser Arg Cys Gly
            115                 120                 125
Lys Glu Gly Ile Lys Met Pro Lys Thr Lys Arg Lys Lys Lys Asn Asn
        130                 135                 140
Leu Glu Asn Lys Asn Ala Lys Ile Val Gln Ile Glu Glu Asn Lys Pro
145                 150                 155                 160
Tyr Ser Leu Lys Arg Gly Lys His Val Tyr Ser Ile Lys Ala Xaa Asn
                165                 170                 175
Asp Ala Leu Ser Glu Cys Thr Ser Arg Phe Val Thr Gln Tyr Pro Cys
            180                 185                 190
Met Ile Lys Gly Cys Thr Ser Val Val Thr Ser Glu Ser Asn Ile Ile
        195                 200                 205
Arg His Tyr Lys Xaa His Lys Leu Ser Lys Ala Leu His His Thr Pro
        210                 215                 220
Glu Xaa Xaa Leu Leu Phe Ser Asn Xaa Val Cys Thr Pro Ser Lys Gly
225                 230                 235                 240
Asn Val


<210> 706
<211> 200
<212> PRT
<213> Homo sapiens

<400> 706
His Lys Ser Asp Leu Pro Ala Phe Ser Ala Glu Val Glu Glu Glu Ser
1               5                   10                  15
Glu Ala Gly Xaa Glu Ser Xaa Glu Thr Glu Thr Lys Gln Thr Leu Lys
            20                  25                  30
Glu Phe Arg Cys Xaa Xaa Ser Asp Cys Ser Arg Ile Phe Gln Ala Ile
            35                  40                  45
Thr Gly Leu Ile Gln His Tyr Met Lys Leu His Glu Met Thr Pro Glu
        50                  55                  60
Glu Ile Glu Ser Met Thr Ala Ser Val Asp Val Gly Lys Phe Pro Cys
65                  70                  75                  80
Asp Xaa Leu Glu Cys Lys Ser Ser Phe Thr Thr Tyr Leu Asn Tyr Val
            85                  90                  95
Val His Leu Glu Ala Asp His Gly Ile Gly Leu Arg Ala Ser Lys Thr
            100                 105                 110
Glu Glu Asp Gly Val Tyr Lys Cys Asp Cys Glu Gly Cys Asp Arg Ile
            115                 120                 125
Tyr Ala Thr Arg Thr Asn Leu Leu Arg Xaa Ile Phe Asn Lys His Asn
        130                 135                 140
```

257

```
        Asp Lys His Lys Ala His Leu Ile Arg Pro Arg Arg Leu Thr Pro Gly
        145             150             155             160
        Gln Glu Asn Met Xaa Ser Lys Ala Asn Gln Glu Lys Ser Lys Ser Lys
                        165             170             175
   5    His Arg Gly Thr Lys His Xaa Lys Cys Gly Lys Glu Gly Ile Lys Met
                        180             185             190
        Pro Arg Pro Thr Lys Glu Xaa Lys
                195             200

10              <210> 707
                <211> 103
                <212> PRT
                <213> Homo sapiens

15              <400> 707
        Xaa Ser Tyr Arg Asn Xaa Gly Leu Gln Ile Leu Leu Gly His Ser Asp
        1               5               10              15
        Arg Ala Ser Phe Xaa Ser Leu Asn Arg Ile Xaa Met Leu Pro Thr Phe
                        20              25              30
20      Gln Lys Ile Arg Leu Ile Xaa Phe Gln Phe Ala Gln Ser Leu His Ser
                        35              40              45
        Cys Phe Leu Asn Tyr Xaa Phe Ser Phe Val Gly Arg Gly Ile Phe Ile
                50              55              60
        Pro Ser Phe Pro His Xaa Leu Cys Leu Val Pro Arg Cys Leu Asp Phe
25      65              70              75              80
        Asp Phe Ser Trp Phe Ala Leu Leu Xaa Ile Phe Ser Trp Pro Gly Val
                        85              90              95
        Asn Leu Leu Gly Arg Ile Lys
                        100
30
                <210> 708
                <211> 135
                <212> PRT
                <213> Homo sapiens
35
                <400> 708
        Met Gly Ser Phe Phe Val Ser Ser Ile Arg Met Val Phe Ala Val Phe
        1               5               10              15
        Phe Phe Cys Phe Thr Xaa Asp Xaa Ser Arg Asn Phe Arg Asn Asp Leu
40                      20              25              30
        Gln Ile Pro Leu Gly Leu Lys Xaa Leu Gln Ser Lys Arg Cys Xaa Asp
                35              40              45
        Ala Pro His Xaa Leu Asn Gly Asn Ser Lys Phe Xaa Xaa Leu Tyr Xaa
                50              55              60
45      Arg Tyr Leu Thr Xaa Leu Xaa Met Leu Xaa Gln Leu Phe Gln Leu Ser
        65              70              75              80
        Phe Phe Ile Xaa Xaa Asp Xaa Phe Xaa Phe Tyr Leu Ser Ser Asn Thr
                        85              90              95
        Cys Phe Trp Leu Ser Asp Gly Arg Gly Phe Phe Arg Lys His Phe Phe
50                      100             105             110
        Xaa Leu Xaa Lys Phe Asn Leu Gly Xaa Ser Xaa Gly Leu Ser Xaa Leu
                115             120             125
        Leu Ile Trp Lys Lys Gln Ser
        130             135
55
                <210> 709
                <211> 67
                <212> PRT
                <213> Homo sapiens
60
                <400> 709
        Ser Ser Lys Pro Ile Gly Leu Lys Glu Leu Gln Ser Lys Asp Ala Xaa
        1               5               10              15
```

258

```
        Cys Ser Ser Met Gly Glu Trp His Ser Ser Phe Phe Phe Phe Thr Xaa
                    20                  25                  30
        Arg Tyr Leu Thr Xaa Leu Leu Met Ala Gly Ser Thr Phe Ser Thr Phe
                    35                  40                  45
  5     Leu Phe Tyr Leu Gly Arg His Phe Phe Leu Ile Thr Leu Ser Lys Thr
                    50                  55                  60
        Ala Phe Gly
        65


 10             <210> 710
                <211> 131
                <212> PRT
                <213> Homo sapiens


 15             <400> 710
        Arg Ser Phe Leu Lys Phe Leu Glu Xaa Ser Ala Val Lys Gln Lys Lys
         1               5                  10                  15
        Asn Xaa Xaa Lys Xaa His Pro Asn Thr Gly Asn Lys Lys Gly Ser His
                    20                  25                  30
 20     Ser Asn Ser Arg Lys Asn Ile Asp Lys Thr Ala Val Thr Ser Gly Asn
                    35                  40                  45
        His Val Cys Pro Cys Lys Glu Ser Glu Thr Phe Val Gln Phe Ala Asn
                    50                  55                  60
        Pro Ser Gln Leu Gln Cys Ser Asp Asn Val Lys Ile Val Leu Xaa Lys
 25     65                  70                  75                  80
        Asn Leu Lys Asp Cys Xaa Glu Leu Val Leu Lys Gln Leu Gln Glu Met
                    85                  90                  95
        Lys Pro Xaa Val Ser Leu Lys Lys Leu Glu Val His Ser Asn Asp Pro
                    100                 105                 110
 30     Asp Met Ser Val Met Lys Asp Ile Ser Ile Gly Lys Ala Thr Gly Arg
                    115                 120                 125
        Gly Gln Tyr
            130


 35             <210> 711
                <211> 528
                <212> PRT
                <213> Homo sapiens


 40             <400> 711
        Lys Asn Arg Ser Ile Gly Ala Ala Ala Lys Ser Gln Val Ile Ser Asn
         1               5                  10                  15
        Ala Lys Asn Thr Val Gln Gly Phe Lys Arg Phe His Gly Arg Ala Phe
                    20                  25                  30
 45     Ser Asp Pro Phe Val Glu Ala Glu Lys Ser Asn Leu Ala Tyr Asp Ile
                    35                  40                  45
        Val Gln Leu Pro Thr Gly Leu Thr Gly Ile Lys Val Thr Tyr Met Glu
                    50                  55                  60
        Glu Glu Arg Asn Phe Thr Thr Glu Gln Val Thr Ala Met Leu Leu Ser
 50     65                  70                  75                  80
        Lys Leu Lys Glu Thr Ala Glu Ser Val Leu Lys Lys Pro Val Val Asp
                    85                  90                  95
        Cys Val Val Ser Val Pro Cys Phe Tyr Thr Asp Ala Glu Arg Arg Ser
                    100                 105                 110
        Val Met Asp Ala Thr Gln Ile Ala Gly Leu Asn Cys Leu Arg Leu Met
 55                 115                 120                 125
        Asn Glu Thr Thr Ala Val Ala Leu Ala Tyr Gly Ile Tyr Lys Gln Asp
                    130                 135                 140
        Leu Pro Ala Leu Glu Glu Lys Pro Arg Asn Val Val Phe Val Asp Met
 60     145                 150                 155                 160
        Gly His Ser Ala Tyr Gln Val Ser Val Cys Ala Phe Asn Arg Gly Lys
                    165                 170                 175
        Leu Lys Val Leu Ala Thr Ala Phe Asp Thr Thr Leu Gly Gly Arg Lys
                                259
```

```
                      180                  185                  190
      Phe Asp Glu Val Leu Val Asn His Phe Cys Glu Glu Phe Gly Lys Lys
              195                  200                  205
      Tyr Lys Leu Asp Ile Lys Ser Lys Ile Arg Ala Leu Leu Arg Leu Ser
   5      210                  215                  220
      Gln Glu Cys Glu Lys Leu Lys Lys Leu Met Ser Ala Asn Ala Ser Asp
      225                  230                  235                  240
      Leu Pro Leu Ser Ile Glu Cys Phe Met Asn Asp Val Asp Val Ser Gly
                      245                  250                  255
  10  Thr Met Asn Arg Gly Lys Phe Leu Glu Met Cys Asn Asp Leu Leu Ala
              260                  265                  270
      Arg Val Glu Pro Pro Leu Arg Ser Val Leu Glu Gln Thr Lys Leu Lys
          275                  280                  285
      Lys Glu Asp Ile Tyr Ala Val Glu Ile Val Gly Gly Ala Thr Arg Ile
  15      290                  295                  300
      Pro Ala Val Lys Glu Lys Ile Ser Lys Phe Phe Gly Lys Glu Leu Ser
      305                  310                  315                  320
      Thr Thr Leu Asn Ala Asp Glu Ala Val Thr Arg Gly Cys Ala Leu Gln
                      325                  330                  335
  20  Cys Ala Ile Leu Ser Pro Ala Phe Lys Val Arg Glu Phe Ser Ile Thr
              340                  345                  350
      Asp Val Val Pro Tyr Pro Ile Ser Leu Arg Trp Asn Ser Pro Xaa Glu
              355                  360                  365
      Glu Gly Ser Ser Asp Cys Glu Val Phe Ser Lys Asn His Ala Ala Pro
  25      370                  375                  380
      Phe Ser Lys Val Leu Thr Phe Tyr Arg Lys Glu Pro Phe Thr Leu Glu
      385                  390                  395                  400
      Ala Tyr Tyr Ser Ser Pro Gln Asp Leu Pro Tyr Pro Asp Pro Ala Ile
                      405                  410                  415
  30  Ala Gln Phe Ser Val Gln Lys Val Thr Pro Gln Ser Asp Gly Ser Ser
              420                  425                  430
      Ser Lys Val Lys Val Lys Val Arg Val Asn Val His Gly Ile Phe Ser
              435                  440                  445
      Val Ser Ser Ala Ser Leu Val Glu Val His Lys Ser Glu Glu Asn Glu
  35      450                  455                  460
      Glu Pro Met Glu Thr Asp Gln Asn Ala Lys Glu Glu Glu Lys Met Gln
      465                  470                  475                  480
      Val Asp Gln Glu Glu Pro His Val Glu Glu Gln Gln Gln Gln Thr Pro
                      485                  490                  495
  40  Ala Glu Asn Lys Ala Glu Ser Glu Glu Met Glu Thr Ser Gln Ala Gly
              500                  505                  510
      Ser Lys Asp Lys Lys Met Asp Gln Pro Pro Lys Pro Arg Arg Gln Lys
              515                  520                  525


  45          <210> 712
              <211> 156
              <212> PRT
              <213> Homo sapiens


  50          <400> 712
      Asp Cys Glu Val Phe Ser Lys Asn His Ala Ala Pro Phe Ser Lys Val
       1                   5                  10                   15
      Leu Thr Phe Tyr Arg Lys Glu Pro Phe Thr Leu Glu Ala Tyr Tyr Ser
                      20                   25                   30
  55  Ser Pro Gln Asp Leu Pro Tyr Pro Asp Pro Ala Ile Ala Gln Phe Ser
                  35                   40                   45
      Val Gln Lys Val Thr Pro Gln Ser Asp Gly Ser Ser Ser Lys Val Lys
          50                   55                   60
      Val Lys Val Arg Val Asn Val His Gly Ile Phe Ser Val Ser Ser Ala
  60  65                   70                   75                   80
      Ser Leu Val Glu Val His Lys Ser Glu Glu Asn Glu Glu Pro Met Glu
                      85                   90                   95
      Thr Asp Gln Asn Ala Lys Glu Glu Glu Lys Met Gln Val Asp Gln Glu
```

260

```
                    100                    105                    110
      Glu Pro His Val Glu Glu Gln Gln Gln Gln Thr Pro Ala Glu Asn Lys
                115                    120                    125
      Ala Glu Ser Glu Glu Met Glu Thr Ser Gln Ala Gly Ser Lys Asp Lys
  5             130                    135                    140
      Lys Met Asp Gln Pro Pro Lys Pro Arg Arg Gln Lys
      145                    150                    155


             <210> 713
 10          <211> 166
             <212> PRT
             <213> Homo sapiens


             <400> 713
 15   Val Asn Leu Leu Arg Tyr Val Ser Arg Asn Leu Lys Asn Asp Gln Lys
      1               5                    10                    15
      Leu Phe Glu Glu Leu Gly Lys Gln Ile His Gln Tyr Met Lys Ile Ile
                20                    25                    30
      Ser Ser Phe Lys Asn Lys Glu Asp Gln Tyr Asp His Leu Asp Ala Ala
 20             35                    40                    45
      Asp Met Thr Lys Val Glu Lys Ser Thr Asn Glu Ala Met Glu Trp Met
                50                    55                    60
      Asn Asn Lys Leu Asn Leu Gln Asn Lys Gln Ser Leu Thr Met Asp Pro
      65                    70                    75                    80
 25   Val Val Lys Ser Lys Glu Ile Glu Ala Lys Ile Lys Glu Leu Thr Ser
                      85                    90                    95
      Thr Cys Ser Pro Ile Ile Ser Lys Pro Lys Pro Lys Val Glu Pro Pro
                100                    105                    110
      Lys Glu Gly Xaa Lys Met Xaa Xaa Arg Xaa Ala Xaa Trp Met Asp Lys
 30             115                    120                    125
      Glu Thr Thr Gln Ala Pro Arg Xaa Xaa Ser Arg Val Gln Thr Gln Leu
                130                    135                    140
      Cys Leu Arg Ile Gln Thr Arg Ser Phe Leu Lys Trp Thr Leu Ile Asp
      145                    150                    155                    160
 35   Ser Asn Thr Cys Phe Tyr
                      165


             <210> 714
             <211> 219
 40          <212> PRT
             <213> Homo sapiens


             <400> 714
      Val Val Ser Val Pro Cys Phe Tyr Thr Asp Ala Glu Arg Arg Ser Val
 45   1               5                    10                    15
      Met Asp Ala Thr Gln Ile Ala Gly Leu Asn Cys Leu Arg Leu Met Asn
                20                    25                    30
      Glu Thr Thr Ala Val Ala Leu Ala Tyr Gly Ile Tyr Lys Gln Asp Leu
                35                    40                    45
 50   Pro Ala Leu Glu Glu Lys Pro Arg Asn Val Val Phe Val Asp Met Gly
                50                    55                    60
      His Ser Ala Tyr Gln Val Ser Val Cys Ala Phe Asn Arg Gly Lys Leu
      65                    70                    75                    80
      Lys Val Leu Ala Thr Ala Phe Asp Thr Thr Leu Gly Gly Arg Lys Phe
 55                   85                    90                    95
      Asp Glu Val Leu Val Asn His Phe Cys Glu Glu Phe Gly Lys Lys Tyr
                100                    105                    110
      Lys Leu Asp Ile Lys Ser Lys Ile Arg Ala Leu Leu Arg Leu Ser Gln
                115                    120                    125
 60   Glu Cys Glu Lys Leu Lys Lys Leu Met Ser Ala Asn Ala Ser Asp Leu
                130                    135                    140
      Pro Leu Ser Ile Glu Cys Phe Met Asn Asp Val Asp Val Ser Gly Thr
      145                    150                    155                    160
```

```
        Met Asn Arg Gly Lys Phe Leu Glu Met Cys Asn Asp Leu Leu Ala Arg
                    165                 170                 175
        Val Glu Pro Pro Leu Arg Ser Val Leu Glu Gln Thr Lys Leu Lys Lys
                    180                 185                 190
  5     Glu Asp Ile Tyr Ala Val Glu Ile Val Gly Gly Ala Thr Arg Ile Pro
                    195                 200                 205
        Ala Val Lys Glu Lys Ile Ser Gln Ile Phe Arg
            210                 215

 10         <210> 715
            <211> 184
            <212> PRT
            <213> Homo sapiens

 15         <400> 715
        Lys Asn Arg Ser Ile Gly Ala Ala Ala Lys Ser Gln Val Ile Ser Asn
        1               5                   10                  15
        Ala Lys Asn Thr Val Gln Gly Phe Lys Arg Phe His Gly Arg Ala Phe
                    20                  25                  30
 20     Ser Asp Pro Phe Val Glu Ala Glu Lys Ser Asn Leu Ala Tyr Asp Ile
                    35                  40                  45
        Val Gln Leu Pro Thr Gly Leu Thr Gly Ile Lys Val Thr Tyr Met Glu
                    50                  55                  60
        Glu Glu Arg Asn Phe Thr Thr Glu Gln Val Thr Ala Met Leu Leu Ser
 25     65                  70                  75                  80
        Lys Leu Lys Glu Thr Ala Glu Ser Val Leu Lys Lys Pro Val Val Asp
                    85                  90                  95
        Cys Val Val Ser Val Pro Cys Phe Tyr Thr Asp Ala Glu Arg Arg Ser
                    100                 105                 110
 30     Val Met Asp Ala Thr Gln Ile Ala Gly Leu Asn Cys Leu Arg Leu Met
                    115                 120                 125
        Asn Glu Thr Thr Ala Val Ala Leu Ala Tyr Gly Ile Tyr Lys Gln Asp
                    130                 135                 140
        Leu Pro Ala Leu Glu Glu Lys Pro Arg Asn Val Val Phe Val Asp Met
 35     145                 150                 155                 160
        Gly His Ser Ala Tyr Gln Val Ser Val Cys Ala Phe Asn Arg Gly Lys
                    165                 170                 175
        Leu Lys Val Ser Gly His Cys Ile
                    180

 40         <210> 716
            <211> 247
            <212> PRT
            <213> Homo sapiens

 45         <400> 716
        Phe His Gly Arg Ala Phe Ser Asp Pro Phe Val Glu Ala Glu Lys Ser
        1               5                   10                  15
        Asn Leu Ala Tyr Asp Ile Val Gln Leu Pro Thr Gly Leu Thr Gly Ile
 50                 20                  25                  30
        Lys Val Thr Tyr Met Glu Glu Glu Arg Asn Phe Thr Thr Glu Gln Val
                    35                  40                  45
        Thr Ala Met Leu Leu Ser Lys Leu Lys Glu Thr Ala Glu Ser Val Leu
                    50                  55                  60
 55     Lys Lys Pro Val Val Asp Cys Val Val Ser Val Pro Cys Phe Tyr Thr
        65                  70                  75                  80
        Asp Ala Glu Arg Arg Ser Val Met Asp Ala Thr Gln Ile Ala Gly Phe
                    85                  90                  95
        Asn Cys Leu Arg Leu Met Asn Glu Thr Thr Ala Val Ala Leu Ala Tyr
 60                 100                 105                 110
        Gly Ile Tyr Lys Gln Asp Leu Pro Ala Leu Glu Glu Lys Pro Arg Asn
                    115                 120                 125
        Val Val Phe Val Asp Met Gly His Ser Ala Tyr Gln Val Ser Val Cys
```

262

```
              130                      135                      140
     Ala Phe Asn Arg Gly Lys Leu Lys Val Leu Ala Thr Ala Phe Asp Thr
     145                      150                      155                      160
 5   Thr Leu Gly Gly Arg Lys Phe Asp Glu Val Leu Val Asn His Phe Cys
                          165                      170                      175
     Glu Glu Phe Gly Lys Lys Tyr Lys Leu Asp Ile Lys Ser Lys Ile Arg
                      180                      185                      190
     Ala Leu Leu Arg Leu Ser Gln Glu Cys Glu Lys Leu Lys Lys Ile Asp
                  195                      200                      205
10   Glu Val Gln Met Leu Gln Ile Ser Leu Leu Ser Ile Glu Trp Phe Met
              210                      215                      220
     Asn Asp Val Asp Val Ser Trp Asn Tyr Glu Ile Xaa Xaa Asn Phe Xaa
     225                      230                      235                      240
     Glu Lys Val Pro Met Ile Ser
15                        245
```

```
         <210> 717
         <211> 176
         <212> PRT
20       <213> Homo sapiens


         <400> 717
     Leu Arg Leu Ser Gln Glu Cys Glu Lys Leu Lys Lys Leu Met Ser Ala
     1               5                       10                      15
25   Asn Ala Ser Asp Leu Pro Leu Ser Ile Glu Cys Phe Met Asn Asp Val
                      20                      25                      30
     Asp Val Ser Gly Thr Met Asn Arg Gly Lys Phe Leu Glu Met Cys Asn
                  35                      40                      45
     Asp Leu Leu Ala Arg Val Glu Pro Pro Leu Arg Ser Val Leu Glu Gln
30       50                      55                      60
     Thr Lys Leu Lys Lys Glu Asp Ile Tyr Ala Val Glu Ile Val Gly Gly
     65                      70                      75                      80
     Ala Thr Arg Ile Pro Ala Val Lys Glu Lys Ile Ser Lys Phe Phe Gly
                          85                      90                      95
35   Lys Glu Leu Ser Thr Thr Leu Asn Ala Asp Glu Ala Val Thr Arg Gly
                      100                     105                     110
     Cys Ala Leu Gln Cys Ala Ile Leu Ser Pro Ala Phe Lys Val Arg Glu
                  115                     120                     125
     Phe Ser Ile Thr Asp Val Val Pro Tyr Pro Ile Ser Leu Arg Trp Asn
40       130                     135                     140
     Ser Pro Xaa Glu Glu Gly Ser Ser Asp Cys Glu Val Phe Phe Lys Asn
     145                     150                     155                     160
     His Ala Ala Pro Phe Ser Lys Val Leu Thr Phe Tyr Arg Lys Glu Pro
                          165                     170                     175
45
         <210> 718
         <211> 178
         <212> PRT
         <213> Homo sapiens
50

         <400> 718
     Glu Asp Ala Phe Lys Ile Trp Val Ile Phe Asn Phe Leu Ser Glu Asp
     1               5                       10                      15
     Lys Tyr Pro Leu Ile Ile Val Ser Glu Ile Glu Tyr Leu Leu Lys
55                        20                      25                      30
     Lys Leu Thr Glu Ala Met Gly Gly Trp Gln Gln Glu Gln Phe Glu
                      35                      40                      45
     His Tyr Lys Ile Asn Phe Asp Asp Ser Lys Asn Gly Leu Ser Ala Trp
                  50                      55                      60
60   Glu Leu Ile Glu Leu Ile Gly Asn Gly Gln Phe Ser Lys Gly Met Asp
     65                      70                      75                      80
     Arg Gln Thr Val Ser Met Ala Ile Asn Glu Val Phe Asn Glu Leu Ile
                          85                      90                      95
```

```
      Leu Asp Val Leu Lys Gln Gly Tyr Met Met Lys Lys Gly His Arg Arg
              100             105             110
      Lys Asn Trp Thr Glu Arg Trp Phe Val Leu Lys Pro Asn Ile Ile Ser
              115             120             125
 5    Tyr Tyr Val Ser Glu Asp Leu Lys Asp Lys Lys Gly Asp Ile Leu Leu
              130             135             140
      Asp Glu Asn Cys Cys Val Glu Ser Leu Pro Asp Lys Asp Gly Lys Lys
      145             150             155             160
      Cys Leu Phe Leu Val Lys Cys Phe Asp Lys Thr Phe Glu Ile Ser Ala
10            165             170             175
      Phe Arg


          <210> 719
15        <211> 107
          <212> PRT
          <213> Homo sapiens


          <400> 719
20    Phe Val Leu Arg Trp Ser Leu Thr Leu Leu Pro Lys Leu Glu Tyr Asn
      1               5               10              15
      Gly Ile Ile Ser Ala Arg Cys Asn Leu Arg Leu Pro Arg Ser Ser Asp
              20              25              30
      Ser Pro Ala Ser Ala Ser Gln Val Ala Gly Ile Thr Gly Ala Arg His
25            35              40              45
      Gln Ala Gln Leu Ile Phe Phe Val Phe Leu Val Glu Thr Gly Phe His
              50              55              60
      Gln Val Gly Gln Ala Gly Leu Glu Leu Leu Thr Ser Gly Asp Pro Pro
      65              70              75              80
30    Ala Ser Ala Ser Gln Ser Ala Gly Ile Thr Gly Val Ser His His Ala
                      85              90              95
      Arg Pro Pro Lys Leu Phe Leu Leu Ser Leu Xaa
              100             105


35        <210> 720
          <211> 45
          <212> PRT
          <213> Homo sapiens


40        <400> 720
      Leu Tyr His Asn Ile His Asn Gly Glu Leu Tyr Asp Met Val Ala Glu
      1               5               10              15
      Ile Gly Pro Phe Met Cys Cys Phe Tyr Phe Thr Ser Asn Cys Arg Tyr
              20              25              30
45    Arg Val Ile Asn Lys Ile His Pro Cys Leu Ser His Pro
              35              40              45


          <210> 721
          <211> 201
50        <212> PRT
          <213> Homo sapiens


          <400> 721
      Glu Glu Glu Glu Glu Ile Glu Pro Phe Pro Glu Glu Arg Glu Asn Phe
55    1               5               10              15
      Leu Gln Gln Leu Tyr Lys Phe Met Glu Asp Arg Gly Thr Pro Ile Asn
              20              25              30
      Lys Arg Pro Val Leu Gly Tyr Arg Asn Leu Asn Leu Phe Lys Leu Phe
              35              40              45
60    Arg Leu Val His Lys Leu Gly Gly Phe Asp Asn Ile Glu Ser Gly Ala
              50              55              60
      Val Trp Lys Gln Val Tyr Gln Asp Leu Gly Ile Pro Val Leu Asn Ser
      65              70              75              80
```

264

```
        Ala Ala Gly Tyr Asn Val Lys Cys Ala Tyr Lys Lys Tyr Leu Tyr Gly
                        85              90                  95
        Phe Glu Glu Tyr Cys Arg Ser Ala Asn Ile Glu Phe Gln Met Ala Leu
                    100             105             110
     5  Pro Glu Lys Val Val Asn Lys Gln Cys Lys Glu Cys Glu Asn Val Lys
                    115             120             125
        Glu Ile Lys Val Lys Glu Glu Asn Glu Thr Glu Ile Lys Glu Xaa Lys
                130             135             140
        Met Glu Glu Glu Arg Asn Ile Ile Pro Arg Glu Glu Lys Pro Ile Glu
    10  145             150             155             160
        Asp Glu Ile Glu Arg Lys Glu Asn Ile Lys Pro Ser Leu Gly Ser Lys
                    165             170             175
        Lys Asn Leu Leu Xaa Ser Ile Pro Thr His Ser Asp Gln Glu Lys Glu
                    180             185             190
    15  Val Asn Ile Lys Lys Thr Arg Arg Gln
                    195             200


            <210> 722
            <211> 205
    20      <212> PRT
            <213> Homo sapiens


            <400> 722
        Lys Pro Leu Lys Xaa Phe Phe Gln Ile Leu Ile Xaa Gly Cys Xaa Phe
    25  1               5               10              15
        Pro Xaa Ala Ser Cys Pro Lys Gly Gly Gly Xaa Glu Glu Ser Leu Gln
                    20              25              30
        Thr Val Val Xaa Glu Glu Ser Cys Ser Pro Ser Val Glu Leu Glu Xaa
                    35              40              45
    30  Xaa Pro Pro Val Asn Val Asp Ser Lys Pro Ile Glu Glu Lys Pro Val
                50              55              60
        Glu Val Asn Ala Glu Lys Gln Asn Phe Gln Val Val Ala Val Ile Gln
        65              70              75              80
        Cys Leu Asn Thr Pro Pro Thr Thr Pro Glu Ser Pro Ser Ser Val Thr
    35                  85              90              95
        Val Thr Xaa Gly Ser Arg Gln Gln Ser Ser Val Thr Val Ser Glu Pro
                    100             105             110
        Leu Ala Pro Asn Gln Glu Glu Val Arg Ser Ile Lys Ser Glu Thr Asp
                    115             120             125
    40  Ser Thr Ile Glu Val Asp Ser Val Ala Gly Glu Leu Gln Asp Leu Gln
                130             135             140
        Ser Glu Gly Asn Ser Ser Pro Ala Gly Phe Asp Ala Ser Val Ser Ser
        145             150             155             160
        Ser Ser Ser Asn Gln Pro Glu Pro Glu His Pro Glu Lys Ala Cys Thr
    45                  165             170             175
        Gly Gln Lys Arg Val Lys Asp Ala Gln Gly Gly Gly Ser Ser Ser Lys
                    180             185             190
        Lys Gln Lys Arg Ser His Lys Ala Thr Val Val Asn Asn
                    195             200             205
    50
            <210> 723
            <211> 228
            <212> PRT
            <213> Homo sapiens
    55
            <400> 723
        Ile Asn Lys Arg Pro Val Leu Gly Tyr Arg Asn Leu Asn Leu Phe Lys
        1               5               10              15
        Leu Phe Arg Leu Val His Lys Leu Gly Gly Phe Asp Asn Ile Glu Ser
    60                  20              25              30
        Gly Ala Val Trp Lys Gln Val Tyr Gln Asp Leu Gly Ile Pro Val Leu
                    35              40              45
        Asn Ser Ala Ala Gly Tyr Asn Val Lys Cys Ala Tyr Lys Lys Tyr Leu
```

265

```
            50                      55                      60
      Tyr Gly Phe Glu Glu Tyr Cys Arg Ser Ala Asn Ile Glu Phe Gln Met
      65                      70                      75                      80
      Ala Leu Pro Glu Lys Val Val Asn Lys Gln Cys Lys Glu Cys Glu Asn
                          85                      90                      95
      Val Lys Glu Ile Lys Val Lys Glu Glu Asn Glu Thr Glu Ile Lys Glu
                          100                     105                     110
      Ile Lys Met Glu Glu Glu Arg Asn Ile Ile Pro Arg Glu Glu Lys Pro
                      115                     120                     125
      Ile Glu Asp Glu Ile Glu Arg Lys Glu Asn Ile Lys Pro Ser Leu Gly
                130                     135                     140
      Ser Lys Lys Asn Leu Leu Glu Ser Ile Pro Thr His Ser Asp Gln Glu
      145                     150                     155                     160
      Lys Glu Val Asn Ile Lys Lys Pro Glu Asp Asn Glu Asn Leu Asp Asp
                          165                     170                     175
      Lys Asp Asp Asp Thr Thr Arg Val Asp Glu Ser Leu Asn Ile Lys Val
                          180                     185                     190
      Glu Ala Glu Glu Glu Lys Ala Lys Ser Gly Asp Glu Thr Asn Lys Glu
                          195                     200                     205
      Glu Asp Glu Asp Asp Glu Glu Ala Glu Glu Glu Glu Glu Glu Glu Glu
                210                     215                     220
      Xaa Arg Arg Gly
      225


            <210> 724
            <211> 109
            <212> PRT
            <213> Homo sapiens


            <400> 724
      Thr Ser Phe Xaa His Phe Leu Asn Phe Ser Leu Gly Pro Xaa Arg Xaa
      1                   5                   10                      15
      Leu Asp Phe Xaa Xaa Leu Val Asp Ser Thr Gln Thr Xaa Leu Pro Pro
                      20                      25                      30
      Leu Val Gly His His His Leu His Pro Leu Leu Xaa Ser Ser Ser Ser
                35                      40                      45
      Ser Ser Ser Ser Ala Ser Ser Ser Ser Ser Ser Ser Ser Leu Phe Val
                50                      55                      60
      Ser Ser Pro Asp Phe Ala Phe Ser Ser Ser Ala Ser Thr Phe Met Leu
      65                      70                      75                      80
      Arg Asp Ser Ser Thr Leu Val Val Ser Ser Ser Leu Ser Ser Arg Phe
                      85                      90                      95
      Ser Leu Ser Ser Gly Phe Leu Met Leu Thr Ser Phe Ser
                      100                     105


            <210> 725
            <211> 121
            <212> PRT
            <213> Homo sapiens


            <400> 725
      Asp Ile Xaa Ile Phe Asn Thr Ser Phe Ile His Phe Leu Ile Phe Pro
      1                   5                   10                      15
      Ser Ser Ile Pro His Leu Asp Phe His Ala Trp Gly Ile Ala Leu Lys
                      20                      25                      30
      Leu Leu Phe Leu Xaa Xaa Gly Ile Ile Ile Phe Ile Xaa Phe Phe Phe
                35                      40                      45
      Phe Leu Leu Leu Leu Xaa Phe Cys Phe Phe Ile Ile Phe Ile Phe Phe
                50                      55                      60
      Phe Ile Arg Xaa Ile Ser Xaa Phe Cys Phe Phe Phe Leu Ser Phe Tyr
      65                      70                      75                      80
      Leu Tyr Xaa Glu Gly Phe Ile Tyr Pro Ser Xaa Val Ile Ile Phe Gly
                      85                      90                      95
```

```
Ala Gln Ile Phe Ile Gly Phe Trp Phe Xaa Asn Xaa Asn Phe Phe Phe
            100                     105             110
Leu Xaa Xaa Met Gly Arg Xaa Xaa Phe
        115             120


        <210> 726
        <211> 164
        <212> PRT
        <213> Homo sapiens


        <400> 726
Xaa Gly Xaa Lys Glu Ile Lys Xaa Glu Glu Xaa Gly Xaa Ile Xaa Xaa
1               5               10              15
Arg Glu Glu Lys Pro Ile Glu Asp Glu Ile Glu Arg Lys Glu Asn Ile
            20              25              30
Lys Pro Xaa Xaa Gly Ser Lys Lys Asn Leu Leu Glu Xaa Xaa Pro Thr
            35              40              45
His Xaa Xaa Gln Glu Lys Glu Val Xaa Ile Xaa Lys Pro Glu Ala Asn
        50              55              60
Glu Asn Leu Gly Ala Lys Asp Asp Asp Xaa Thr Arg Val Asp Glu Ser
65              70              75              80
Leu Xaa Ile Lys Val Glu Ala Glu Glu Glu Lys Ala Lys Xaa Gly Asp
            85              90              95
Xaa Thr Asn Lys Glu Glu Asp Glu Asp Asp Glu Glu Ala Glu Xaa Glu
        100             105             110
Glu Glu Glu Glu Glu Glu Glu Xaa Asp Glu Asp Asp Asp Ala Xaa Xaa
        115             120             125
Glu Glu Glu Glu Phe Glu Cys Tyr Pro Pro Gly Met Lys Val Gln Val
        130             135             140
Arg Tyr Gly Arg Gly Lys Asn Gln Lys Met Tyr Glu Ala Ser Ile Lys
145             150             155             160
Asp Xaa Asp Val


        <210> 727
        <211> 207
        <212> PRT
        <213> Homo sapiens


        <400> 727
Trp Phe Pro Ala Leu Val Val Cys Pro Asp Cys Ser Asp Glu Ile Ala
1               5               10              15
Val Lys Lys Asp Asn Ile Leu Val Arg Ser Phe Lys Asp Gly Lys Phe
            20              25              30
Thr Ser Val Pro Arg Lys Asp Val His Glu Ile Thr Ser Asp Thr Ala
        35              40              45
Pro Lys Pro Asp Ala Val Leu Lys Gln Ala Phe Glu Gln Ala Leu Glu
    50              55              60
Phe His Lys Ser Arg Thr Ile Pro Ala Asn Trp Lys Thr Glu Leu Lys
65              70              75              80
Glu Asp Ser Ser Ser Ser Glu Ala Glu Glu Glu Glu Glu Glu Glu Asp
            85              90              95
Asp Glu Lys Glu Lys Glu Asp Asn Ser Ser Glu Glu Glu Glu Glu Ile
            100             105             110
Glu Pro Phe Pro Glu Glu Arg Glu Asn Phe Leu Gln Gln Leu Tyr Lys
        115             120             125
Phe Met Glu Asp Arg Gly Thr Pro Ile Asn Lys Arg Pro Val Leu Gly
        130             135             140
Tyr Arg Asn Leu Asn Leu Phe Lys Leu Phe Arg Leu Val His Lys Leu
145             150             155             160
Gly Gly Phe Asp Asn Ile Glu Ser Gly Ala Val Trp Lys Gln Val Tyr
            165             170             175
Gln Asp Leu Gly Ile Pro Val Leu Asn Ser Ala Ala Gly Tyr Asn Val
```

267

```
                    180                   185                   190
        Lys Cys Ala Tyr Lys Lys Tyr Leu Tyr Gly Phe Glu Gly Val Leu
                195                   200                   205


5           <210> 728
            <211> 221
            <212> PRT
            <213> Homo sapiens


10          <400> 728
        Met Leu Phe Ala Pro Cys Cys His Gln Cys Gly Glu Phe Ile Ile Gly
         1               5                   10                  15
        Arg Val Ile Lys Ala Met Asn Asn Ser Trp His Pro Glu Cys Phe Arg
                    20                  25                  30
15      Cys Asp Leu Cys Gln Glu Val Leu Ala Asp Ile Gly Phe Val Lys Asn
                    35                  40                  45
        Ala Gly Arg His Leu Cys Arg Pro Cys His Asn Arg Glu Lys Ala Arg
                50                  55                  60
        Gly Leu Gly Lys Tyr Ile Cys Gln Lys Cys His Ala Ile Ile Asp Glu
20      65                  70                  75                  80
        Gln Pro Leu Ile Phe Lys Asn Asp Pro Tyr His Pro Asp His Phe Asn
                        85                  90                  95
        Cys Ala Asn Cys Gly Lys Glu Leu Thr Ala Asp Ala Arg Glu Leu Lys
                    100                 105                 110
25      Gly Glu Leu Tyr Cys Leu Pro Cys His Asp Lys Met Gly Val Pro Ile
                    115                 120                 125
        Cys Gly Ala Cys Arg Arg Pro Ile Glu Gly Arg Val Val Asn Ala Met
                    130                 135                 140
        Gly Lys Gln Trp His Val Glu His Phe Val Cys Ala Lys Cys Glu Lys
30      145                 150                 155                 160
        Pro Phe Leu Gly His Arg His Tyr Glu Arg Lys Gly Leu Ala Tyr Cys
                        165                 170                 175
        Glu Thr His Tyr Asn Gln Leu Phe Gly Asp Val Cys Phe His Cys Asn
                    180                 185                 190
35      Arg Val Ile Glu Xaa Asp Val Val Ser Ala Leu Asn Lys Ala Trp Cys
                    195                 200                 205
        Val Asn Cys Phe Ala Cys Ser Thr Leu Gln His Leu Asn
                    210                 215                 220


40          <210> 729
            <211> 114
            <212> PRT
            <213> Homo sapiens


45          <400> 729
        Leu Pro Phe Gln Leu Pro Cys Ile Gly Ser Gln Leu Leu Pro Ala Val
         1               5                   10                  15
        Gly Ala Val Glu Met Val Trp Met Val Gly Val Val Leu Glu Tyr Gln
                    20                  25                  30
50      Arg Leu Leu Ile Asp Asp Ser Met Ala Phe Leu Ala Asp Val Phe Pro
                    35                  40                  45
        Lys Ala Ser Gly Phe Leu Thr Ile Met Thr Gly Ala Thr Gln Val Ser
                50                  55                  60
        Pro Ser Ile Leu Asp Lys Pro Asp Ile Cys Gln Asn Phe Leu Ala Glu
55      65                  70                  75                  80
        Val Thr Ala Glu Ala Leu Arg Met Pro Ala Val Ile His Gly Phe Asp
                        85                  90                  95
        Asn Ser Ala Asn Asp Glu Phe Thr Thr Leu Met Thr Ala Arg Gly Lys
                    100                 105                 110
60      Glu His


            <210> 730                268
```

```
        <211> 191
        <212> PRT
        <213> Homo sapiens

        <400> 730
Arg Arg Pro Ala Ala Gly Leu Arg Asp Xaa Val Xaa Ser Ala Pro Arg
1             5                 10              15
Gly Met Ala Ser Glu Gly Pro Xaa Glu Pro Glu Ser Glu Gly Ile Lys
        20              25              30
Leu Ser Gly Ile Cys Gln Thr Ile Cys Pro Gln Ile Cys Arg Ala Gln
        35              40              45
Cys Gly Met Val Arg Val Leu Arg Ser Met Cys Leu Pro Gln Leu Cys
        50              55              60
Ser His Ile Leu Ser Val Cys Ser Gly Thr Thr Ser Asp Arg Asn Xaa
65              70              75              80
Tyr Ser Val Pro Gly Ser Gln Tyr Leu Tyr Asn Gln Pro Ser Cys Tyr
                85              90              95
Arg Gly Phe Gln Thr Xaa Lys His Arg Asn Glu Asn Thr Cys Pro Leu
            100             105             110
Pro Gln Glu Met Lys Ala Leu Phe Lys Lys Lys Thr Xaa Asp Glu Lys
        115             120             125
Lys Thr Tyr Asp Gln Gln Lys Phe Asp Ser Glu Arg Ala Asp Gly Thr
        130             135             140
Ile Ser Ser Glu Ile Lys Ser Ala Arg Gly Ser His His Leu Ser Ile
145             150             155             160
Tyr Ala Glu Asn Ser Leu Lys Ser Asp Gly Tyr His Lys Arg Thr Asp
            165             170             175
Arg Lys Ser Arg Ile Ile Cys Lys Lys Trp Ile Tyr Leu Gln Thr
            180             185             190

        <210> 731
        <211> 115
        <212> PRT
        <213> Homo sapiens

        <400> 731
Asp Gly Pro Leu Leu Ala Ser Val Thr Xaa Ser Xaa Pro Arg Leu Ala
1             5                 10              15
Ala Trp Arg Arg Arg Gly Xaa Gly Ser Pro Lys Ala Arg Ala Ser Ser
        20              25              30
Tyr Gln Ala Tyr Val Lys Pro Phe Val Pro Arg Phe Ala Gly Leu Asn
        35              40              45
Val Ala Trp Leu Glu Ser Ser Glu Ala Cys Val Phe Pro Ser Ser Ala
        50              55              60
Ala Thr Tyr Tyr Pro Phe Val Gln Glu Pro Pro Val Thr Glu Met Xaa
65              70              75              80
Thr Gln Cys Leu Ala Pro Ser Ile Phe Ile Thr Asn Pro Val Val Thr
            85              90              95
Glu Val Phe Lys Gln Xaa Ser Ile Glu Met Arg Thr His Ala Leu Ser
        100             105             110
His Lys Lys
        115

        <210> 732
        <211> 139
        <212> PRT
        <213> Homo sapiens

        <400> 732
Ser Ile Ser Arg Phe Asn Ser Tyr Thr Asn Tyr Ile Val Met Lys Asn
1             5                 10              15
Arg Arg Lys Ser Pro Lys Val Phe Phe Arg Pro Pro Leu Leu Thr Gln
        20              25              30
```

269

```
     Asn Thr Asp Thr Gln Ala Arg Thr Leu Ile Asn Ser Asn Ser Ser Phe
             35                  40                  45
     Glu Arg Leu Lys Pro Pro Arg Ile Leu Leu Ala Pro Gly Tyr Ile His
             50                  55                  60
 5   Cys Met Leu Pro Asp Val Phe Ser Arg Phe Gln Cys Ser Val Ala Leu
     65                  70                  75                      80
     Leu Phe Leu Ser Gly Leu Gly Gly His Leu Leu Gln Gly Ser Trp Gly
                     85                  90                  95
     Pro Val Trp Val Gly Trp Glu Val Pro Glu Ala Trp Ala Leu Pro Pro
10                   100                 105                 110
     Ala Pro Ala Ala His Ser Pro Ala Trp Leu Asp Trp Ile Phe Leu Val
             115                 120                 125
     His Thr Xaa Leu Glu Thr Asp Xaa Phe Phe Glu
             130                 135
15
             <210> 733
             <211> 155
             <212> PRT
             <213> Homo sapiens
20
             <400> 733
     Gly Gln Ser Leu Lys Lys Xaa Pro Gly Pro Arg Ala Pro Lys Glu Xaa
     1               5                   10                  15
     Arg Gly Leu Pro Pro Leu Xaa Pro Ile Thr Pro Pro Phe Pro Lys Ile
25                   20                  25                  30
     His Gln Pro Gln Ile Gln Gly Xaa Leu Gln Pro Asp Ala Leu Val Lys
             35                  40                  45
     Lys Val Asp Ala Cys Val Thr Asp Pro Thr Gln Arg Xaa Gly Pro Phe
             50                  55                  60
30   Pro Xaa Pro Tyr Val Pro Glu Arg Ser Ser Gln Ala Met Leu Glu Asn
     65                  70                  75                      80
     Val Gln Gln Glu Leu Val Gly Glu Pro Arg Pro Gln Ala Pro Pro Ser
                     85                  90                  95
     Leu Pro Thr Gln Gly Pro Ser Cys Pro Ala Glu Asp Gly Pro Pro Ala
35                   100                 105                 110
     Leu Lys Glu Lys Glu Glu Pro His Tyr Ile Glu Ile Trp Lys Lys His
             115                 120                 125
     Leu Glu Ala Tyr Ser Gly Cys Thr Leu Glu Leu Glu Glu Ser Leu Glu
             130                 135                 140
40   Ala Ser Thr Ser Gln Met Met Asn Leu Asn Leu
     145                 150                 155

             <210> 734
             <211> 126
45           <212> PRT
             <213> Homo sapiens


             <400> 734
     Gly Glu Ala Gly His Trp Ala Gly Arg Ile Ser Arg Tyr Leu Asp Leu
50   1               5                   10                  15
     Tyr Arg Trp Pro Gly Leu Ile Val His Gly Arg Leu Leu Gly Cys Ser
                     20                  25                  30
     Glu Cys Lys Gly Ser Leu Ser Lys Pro Phe Ser Leu Val Leu Ser Gly
             35                  40                  45
55   Val Arg Leu Phe Pro Phe Ser Phe Thr Ser Arg Ser Ser Ser Glu Glu
             50                  55                  60
     Ser Thr Gly Glu Val Val Leu Ala Ser Arg Ser Ser Cys Ser Cys Trp
     65                  70                  75                      80
     Ala Arg Tyr Trp Ala Gly Phe Cys Leu Ala Ser Leu Ala Gln Trp Arg
60                   85                  90                  95
     Ser Ser Arg Cys Ser Arg Gly Lys Leu Ala Phe Lys Asn Gly Met Thr
                     100                 105                 110
     Lys Gly Leu Ser Gly Lys Leu Val Ala Ser Cys Ser Leu Glu
```

115   120   125

<210> 735
<211> 105
<212> PRT
<213> Homo sapiens

<400> 735
Thr Lys Thr Gly Arg Gly Glu Leu Gln Thr Glu Pro Lys Lys Met Ala
1   5   10   15
Leu Thr Glu Ser Leu Cys Thr Gln Asn Ile Gln Ala Ser Asp His Ala
            20   25   30
Leu Leu Ala Gln Ala Ser Gly Thr Ser Pro Asn Asn Gly Leu Ser Tyr
            35   40   45
Gln Pro Asn Gly Leu Pro His Pro Thr Pro Pro Pro Xaa His Tyr
        50   55   60
Arg Leu Asp Asp Met Ala Ile Ala His His Tyr Arg Asp Ser Tyr Arg
65   70   75   80
His Pro Ser His Arg Gly Pro Xaa Gly Gln Lys Xaa Thr Tyr Gly Val
                85   90   95
Ala Trp His Thr Ser Arg Arg Asn Asp
            100   105

<210> 736
<211> 124
<212> PRT
<213> Homo sapiens

<400> 736
Val Asn Ser Thr Leu Thr Ile Glu Glu Phe His Ser Lys Leu Gln Glu
1   5   10   15
Ala Thr Asn Phe Pro Leu Arg Pro Phe Val Ile Pro Phe Leu Lys Ala
            20   25   30
Asn Leu Pro Leu Leu Gln Arg Glu Leu Leu His Cys Ala Arg Leu Ala
            35   40   45
Lys Gln Asn Pro Ala Gln Tyr Leu Ala Gln His Glu Gln Leu Leu Leu
        50   55   60
Asp Ala Ser Thr Thr Ser Pro Val Asp Ser Ser Glu Leu Leu Leu Asp
65   70   75   80
Val Asn Glu Asn Gly Lys Arg Arg Thr Pro Asp Arg Thr Lys Glu Asn
                85   90   95
Gly Phe Asp Arg Glu Pro Leu His Ser Glu His Pro Ser Lys Arg Pro
            100   105   110
Cys Thr Ile Ser Pro Gly Gln Arg Tyr Lys Ser Lys
        115   120

<210> 737
<211> 149
<212> PRT
<213> Homo sapiens

<400> 737
Leu Gln Val Cys Leu Pro Ala Gly Gly Pro Cys Xaa Val Cys Pro Gln
1   5   10   15
Lys Val Met Xaa Leu Leu Pro Ile Phe Xaa Leu Xaa Lys Met Xaa Pro
            20   25   30
Pro Val Xaa Arg Ala Val Val Thr Ser Pro Trp Xaa Gly Phe Thr Ser
        35   40   45
Leu Leu Xaa Xaa Xaa Asn Phe Gln Thr Asn Xaa Xaa Leu Gly Asn Pro
        50   55   60
Pro Gly Gly Leu Glu Lys Pro Xaa Gln Val Ala Val Pro Pro Pro Pro
65   70   75   80
Leu Pro Phe Xaa Ala Xaa Gly Glu Pro Xaa Pro Ser Ile Phe Trp Ala
            271

```
                        85                    90                        95
        Pro Phe Xaa Trp Gly Asn Xaa Val Gly Gly Leu Phe Xaa Ser Pro Leu
                    100                   105                 110
        Lys Lys Xaa Gly Phe Leu Glu Xaa Pro Xaa Ile Xaa Xaa Xaa Pro Leu
                    115                   120                 125
        Xaa Phe Leu Asp Gly Pro Pro Lys Phe Phe Phe Gln Xaa Phe Phe Gly
                    130               135                 140
        Pro Phe Phe Lys Xaa
        145


                <210> 738
                <211> 202
                <212> PRT
                <213> Homo sapiens


                <400> 738
        Val Asn Ser Thr Leu Thr Ile Glu Glu Phe His Ser Lys Leu Gln Glu
        1               5                   10                  15
        Ala Thr Asn Phe Pro Leu Arg Pro Phe Val Ile Pro Phe Leu Lys Ala
                    20                  25                  30
        Asn Leu Pro Leu Leu Gln Arg Glu Leu Leu His Cys Ala Arg Leu Ala
                    35                  40                  45
        Lys Gln Asn Pro Ala Gln Tyr Leu Ala Gln His Glu Gln Leu Leu·Leu
                50                  55                  60
        Asp Ala Ser Thr Thr Ser Pro Val Asp Ser Ser Glu Leu Leu Leu Asp
        65     ·              70                  75                  80
        Val Asn Glu Asn Gly Lys Arg Arg Thr Pro Asp Arg Thr Lys Glu Asn
                       85                   90                  95
        Gly Phe Asp Arg Glu Pro Leu His Ser Glu His Pro Ser Lys Arg Pro
                    100                 105                 110
        Cys Thr Ile Ser Pro Gly Gln Arg Tyr Ser Pro Asn Asn Gly Leu Ser
                    115                 120                 125
        Tyr Gln Pro Asn Gly Leu Pro His Pro Thr Pro Pro Pro Pro Gln His
                    130             135                 140
        Tyr Arg Leu Asp Asp Met Ala Ile Ala His His Tyr Arg Asp Ser Tyr
        145                 150                 155                 160
        Arg His Pro Ser His Arg Asp Leu Arg Asp Arg Asn Arg Pro Met Gly
                    165   ·             170                 175
        Leu His Gly Thr Arg Gln Glu Glu Met Ile Asp His Arg Leu Thr Asp
                    180                 185                 190
        Arg Glu Trp Gly Arg Arg Val Glu Thr Ser
                195                 200


                <210> 739
                <211> 70
                <212> PRT
                <213> Homo sapiens


                <400> 739
        Arg Gly Val Val Ser Met Val Glu Gly Val Pro Gly Val Val Asp Leu
        1               5                   10                  15
        Gly Val Ala Ala Gly Gly Val Ser Ile Gly Leu Pro Ala Pro Leu Leu
                    20                  25                  30
        Gly Val Thr Lys Glu Leu Thr Ala Gly Val Ser Pro Cys Cys Trp Ala
                    35                  40                  45
        Cys Xaa Val Cys Pro Gln Met Trp Met Gly Leu Xaa Pro Ser Phe Xaa
                50                  55                  60
        Ala Gly Gln Met Ser Pro
        65                  70


                <210> 740
                <211> 105
                <212> PRT
```

<213> Homo sapiens

<400> 740
Trp Ala His Leu Pro Ser Xaa Lys Ala Gly Xaa Lys Pro His Pro His
1   5   10   15
Leu Trp Thr Asp Xaa Ala Gly Pro Ala Ala Gly Arg His Pro Cys Ser
            20   25   30
Gln Leu Phe Cys His Ala Gln Gln Arg Gly Trp Glu Pro Asp Gly His
            35   40   45
Thr Thr Ser Ser His Ser Glu Val Asn His Pro Gly Asn Pro Phe His
      50   55   60
His Arg Asp Asn Pro Ser Leu Asp Val Asn Ser Glu Leu Ser Glu Glu
65   70   75   80
Arg Gln His Asn Gln Arg Glu Thr Asn Ser Ser Ser Ser Asp Ala Gln
            85   90   95
Ser Cys Phe Phe Cys Leu Phe Val Tyr
            100   105

<210> 741
<211> 267
<212> PRT
<213> Homo sapiens

<400> 741
Met Met Leu Pro Val Leu Thr His His Ile Arg Tyr His Gln Cys Leu
1   5   10   15
Met His Leu Asp Lys Leu Ile Gly Tyr Thr Phe Gln Asp Arg Cys Leu
            20   25   30
Leu Gln Leu Ala Met Thr His Pro Ser His His Leu Asn Phe Gly Met
            35   40   45
Asn Pro Asp His Ala Arg Asn Ser Leu Ser Asn Cys Gly Ile Arg Gln
      50   55   60
Pro Lys Tyr Gly Asp Arg Lys Val His His Met His Met Arg Lys Lys
65   70   75   80
Gly Ile Asn Thr Leu Ile Asn Ile Met Ser Arg Leu Gly Gln Asp Asp
            85   90   95
Pro Thr Pro Ser Arg Ile Asn His Asn Glu Arg Leu Glu Phe Leu Gly
            100   105   110
Asp Ala Val Val Glu Phe Leu Thr Ser Val His Leu Tyr Tyr Leu Phe
      115   120   125
Pro Ser Leu Glu Glu Gly Gly Leu Ala Thr Tyr Arg Thr Ala Ile Val
      130   135   140
Gln Asn Gln His Leu Ala Met Leu Ala Lys Lys Leu Glu Leu Asp Arg
145   150   155   160
Phe Met Leu Tyr Ala His Gly Pro Asp Leu Cys Arg Glu Ser Asp Leu
            165   170   175
Arg His Ala Met Ala Asn Cys Phe Glu Ala Leu Ile Gly Ala Val Tyr
            180   185   190
Leu Glu Gly Ser Leu Glu Glu Ala Lys Gln Leu Phe Gly Arg Leu Leu
      195   200   205
Phe Asn Asp Pro Asp Leu Arg Glu Val Trp Leu Asn Tyr Pro Leu His
      210   215   220
Pro Leu Gln Leu Gln Glu Pro Asn Thr Asp Arg Gln Leu Ile Gly Asn
225   230   235   240
Phe Phe Gln Phe Tyr Lys Lys Leu Thr Glu Phe Glu Arg Asn Gln Leu
            245   250   255
Gly Val Asn Phe Leu Leu Ile Gly Ser Asp Phe
            260   265

<210> 742
<211> 143
<212> PRT
<213> Homo sapiens

```
        <400> 742
Asn Pro Gly Pro Arg Tyr Gly Arg Thr Trp Ala Ser Arg Ser Xaa Pro
1               5                   10                  15
Ile Pro Thr Pro Ser Gln Lys Ala Leu Gly Val Ser Pro Gln Ala Xaa
            20                  25                  30
Xaa Xaa Leu Leu Glu Ser Phe Ile Ala Ala Leu Xaa Ile Asp Lys Asp
        35                  40                  45
Leu Xaa Tyr Val His Thr Phe His Glu Cys Leu Phe Leu Ser Xaa Ile
    50                  55                  60
Lys Arg Val His Phe Glu Ser Gly Leu Glu Cys Pro Lys Ser Gln Leu
65                  70                  75                  80
Gln Gln Cys Cys Leu Pro Leu Gly Arg Arg Lys Arg Ala Arg His Ser
            85                  90                  95
Phe Val Gln Asp Ser Ala Asp Ser Gly Pro Ile Pro Cys Pro Asn Leu
            100                 105                 110
His Cys Gly Cys Leu Phe Gln Gly Arg Lys Asn Arg Leu Trp Glu Arg
        115                 120                 125
Thr Lys Tyr Ser Ala Ser Gly Asn Gly Ser Ser Asn Gly Cys Ala
        130                 135                 140


        <210> 743
        <211> 87
        <212> PRT
        <213> Homo sapiens


        <400> 743
Lys Thr Gln Ala Gln Gly Thr Glu Glu Leu Gly His Pro Gly Val Xaa
1               5                   10                  15
Gln Tyr Pro Arg Gln Ala Lys Arg Pro Trp Gly Phe Arg Pro Lys Xaa
            20                  25                  30
Trp Xaa Xaa Phe Trp Asn His Leu Leu Gln Arg Cys Xaa Leu Ile Arg
        35                  40                  45
Ile Xaa Asn Met Phe Ile Leu Phe Met Asn Val Cys Phe Phe Xaa Arg
    50                  55                  60
Leu Lys Glu Phe Ile Leu Asn Gln Asp Trp Asn Ala Pro Asn Pro Ser
65                  70                  75                  80
Phe Ser Ser Val Ala Cys Pro
                85


        <210> 744
        <211> 101
        <212> PRT
        <213> Homo sapiens


        <400> 744
Leu Leu Ser Val Leu Pro Phe Asp Glu Pro Leu Leu Met Gly His Leu
1               5                   10                  15
Gly Lys Ile Ile Phe Phe Lys Arg Ile His Cys Cys Ser His Phe Arg
            20                  25                  30
Leu Leu Asn Thr Trp Ser Phe Pro Thr Ala Tyr Ser Phe Ser Leu Glu
        35                  40                  45
Ile Asn Ser His Ser Val Gly Ser Gly Met Gly Trp Ala His Cys Leu
    50                  55                  60
Gln Ser Leu Val Gln Arg Asn Val Trp Leu Phe Ser Phe Cys Leu Arg
65                  70                  75                  80
Ala Ser Asn Thr Ala Glu Ala Gly Ile Trp Gly Ile Pro Ile Leu Ile
            85                  90                  95
Gln Asn Glu Leu Phe
            100


        <210> 745
        <211> 277
```

```
        <212> PRT
        <213> Homo sapiens


        <400> 745
Ile Asn Thr Leu Ile Asn Ile Met Ser Arg Leu Gly Gln Asp Asp Pro
1               5                   10                  15
Thr Pro Ser Arg Ile Asn His Asn Glu Arg Leu Glu Phe Leu Gly Asp
            20                  25                  30
Ala Val Val Glu Phe Leu Thr Ser Val His Leu Tyr Tyr Leu Phe Pro
            35                  40                  45
Ser Leu Glu Glu Gly Gly Leu Ala Thr Tyr Arg Thr Ala Ile Val Gln
        50                  55                  60
Asn Gln His Leu Ala Met Leu Ala Lys Lys Leu Glu Leu Asp Arg Phe
65                  70                  75                  80
Met Leu Tyr Ala His Gly Pro Asp Leu Cys Arg Glu Ser Asp Leu Arg
                85                  90                  95
His Ala Met Ala Asn Cys Phe Glu Ala Leu Ile Gly Ala Val Tyr Leu
                100                 105                 110
Glu Gly Ser Leu Glu Glu Ala Lys Gln Leu Phe Gly Arg Leu Leu Phe
            115                 120                 125
Asn Asp Pro Asp Leu Arg Glu Val Trp Leu Asn Tyr Pro Leu His Pro
            130                 135                 140
Leu Gln Leu Gln Glu Pro Asn Thr Asp Arg Gln Leu Ile Glu Thr Ser
145                 150                 155                 160
Pro Val Leu Gln Lys Leu Thr Glu Phe Glu Glu Ala Ile Gly Val Ile
                165                 170                 175
Phe Thr His Val Arg Leu Leu Ala Arg Ala Phe Thr Leu Arg Thr Val
                180                 185                 190
Gly Phe Asn His Leu Thr Leu Gly His Asn Gln Arg Met Glu Phe Leu
            195                 200                 205
Gly Asp Ser Ile Met Gln Leu Val Pro Gln Ser Thr Tyr Ser Phe Ile
            210                 215                 220
Ser Gln Ile Ile Ile Glu Gly His Leu Thr Phe Val Ala Lys Ala Ser
225                 230                 235                 240
Leu Gly Glu Ile Asn Lys Asn Phe Arg Pro Lys Gly Asn Arg Lys Glu
                245                 250                 255
Ala Trp Ala Leu Gln Gly Ser Thr Pro Ile Thr Gln Pro Asp Gln Glu
            260                 265                 270
Pro Lys Lys Ala Cys
            275


        <210> 746
        <211> 187
        <212> PRT
        <213> Homo sapiens


        <400> 746
Arg Thr Lys Ala Lys Lys Asp Lys Ala Gln Arg Xaa Xaa Xaa Xaa Xaa
1               5                   10                  15
Xaa Xaa Gly Xaa Ala Pro His Ser Glu Ser Asp Leu Pro Glu Gln Glu
            20                  25                  30
Glu Glu Ile Leu Gly Ser Asp Asp Asp Glu Gln Glu Asp Pro Asn Asp
            35                  40                  45
Tyr Cys Lys Gly Gly Tyr His Leu Val Lys Ile Gly Asp Leu Phe Asn
        50                  55                  60
Gly Arg Tyr His Val Ile Arg Lys Leu Gly Trp Gly His Phe Ser Thr
65                  70                  75                  80
Val Trp Leu Ser Trp Asp Ile Gln Gly Lys Lys Phe Val Ala Met Lys
                85                  90                  95
Xaa Val Lys Ser Ala Glu His Tyr Thr Glu Thr Ala Leu Asp Glu Ile
                100                 105                 110
Xaa Leu Leu Lys Ser Val Arg Asn Ser Asp Pro Asn Asp Pro Asn Arg
            115                 120                 125
```

```
          Glu Met Val Val Gln Leu Leu Asp Asp Phe Lys Ile Ser Gly Val Asn
              130                 135                 140
          Gly Thr His Ile Cys Met Val Phe Glu Val Leu Gly His His Leu Leu
              145                 150                 155                 160
     5    Lys Trp Ile Ile Lys Ser Asn Tyr Xaa Gly Leu Pro Leu Pro Cys Xaa
                          165                 170                 175
          Lys Lys Ile Ile Xaa Xaa Val Phe Thr Gly Xaa
                          180                 185


    10            <210> 747
                  <211> 89
                  <212> PRT
                  <213> Homo sapiens


    15            <400> 747
          Ile Asp Pro Pro Pro Phe Pro Phe Lys His Phe Pro Leu Pro Phe Ser
            1               5                   10                  15
          Gly Glu Ala Xaa Pro Ser Lys Val Xaa Arg Ser Cys Phe Phe Phe Asn
                          20                  25                  30
    20    Pro Thr Cys Ser Phe Gly Phe Ala Tyr Leu Thr Leu Xaa Xaa Ser Pro
                      35                  40                  45
          Gln Pro Leu Gly Ile Leu Gly Glu Phe Gly Leu Gly Trp Ala Xaa Pro
                  50                  55                  60
          Lys Thr Asn Gly Xaa Lys Cys Glu Thr Ala Ser Cys Xaa Xaa Pro Phe
    25    65                  70                  75                  80
          Leu Pro Ile Arg Thr Ser Phe Lys Leu
                          85


                  <210> 748
    30            <211> 71
                  <212> PRT
                  <213> Homo sapiens .


                  <400> 748
    35    Xaa Leu Xaa Ser Met Asn Lys Arg Met Gly Ser Tyr Thr Phe Ile Ala
            1               5                   10                  15
          Xaa Phe Lys Lys Asp Ala Tyr Asn Leu Lys Asp Val Leu Met Gly Arg
                          20                  25                  30
          Lys Gly Xaa Gly Gln Glu Ala Val Ser His Phe Xaa Pro Leu Val Phe
    40                    35                  40                  45
          Gly Xaa Ala Gln Pro Arg Pro Asn Ser Pro Arg Met Pro Asn Gly Cys
                  50                  55                  60
          Gly Asp Xaa Xaa Arg Val Lys
          65                  70
    45
                  <210> 749
                  <211> 254
                  <212> PRT
                  <213> Homo sapiens
    50
                  <400> 749
          Val Cys Lys Gly Ile Leu Glu Tyr Leu Thr Val Ala Glu Val Val Glu
            1               5                   10                  15
          Thr Met Glu Asp Leu Val Thr Tyr Thr Lys Asn Leu Gly Pro Gly Met
    55                    20                  25                  30
          Thr Lys Met Ala Lys Met Ile Asp Glu Arg Gln Gln Glu Leu Thr His
                      35                  40                  45
          Gln Glu His Arg Val Met Leu Val Asn Ser Met Asn Thr Val Lys Glu
                  50                  55                  60
    60    Leu Leu Pro Val Leu Ile Ser Ala Met Lys Ile Phe Val Thr Thr Lys
          65                  70                  75                  80
          Asn Ser Lys Asn Gln Gly Ile Glu Glu Ala Leu Lys Asn Arg Asn Phe
                          85                  90                  95
```

```
Thr Val Glu Lys Met Ser Ala Glu Ile Asn Glu Ile Ile Arg Val Leu
            100           ·           105               110
Gln Leu Thr Ser Trp Asp Glu Asp Ala Trp Ala Ser Lys Asp Thr Glu
            115               120               125
Ala Met Lys Arg Ala Leu Ala Ser Ile Asp Ser Lys Leu Asn Gln Ala
            130               135               140
Lys Gly Trp Leu Arg Asp Pro Ser Ala Ser Pro Gly Asp Ala Gly Glu
145               150               155               160
Gln Ala Ile Arg Gln Ile Leu Asp Glu Ala Gly Lys Val Gly Glu Leu
                165               170               175
Cys Ala Gly Lys Lys Arg Arg Glu Xaa Leu Gly Asn Leu Gln Asn Ala
            180               185               190
Xaa Ala Asp Asp Cys Gln Ser Gly Leu Thr Ser Val Pro Arg Gly Gln
            195               200               205
Gly Ser Leu Pro Xaa Gly Pro Cys Xaa Lys Ser Xaa Thr Xaa Tyr Xaa
210               215               220
Gln Gly Leu Gly Xaa Cys Ser Pro Ala Lys Xaa Glu Lys Ala Ser Phe
225               230               235               240
Gln Ser Trp Glu Ser Leu Ala His Xaa Lys Pro Lys His Leu
            245               250
```

```
<210> 750
<211> 82
<212> PRT
<213> Homo sapiens
```

```
<400> 750
Leu Phe Ser Arg Pro Ser Ala Tyr Leu Tyr Ser Cys Leu Pro Asp Ile
1               5               10              15
Asn Ala Ile Leu Met Pro Leu Lys Tyr Glu Ser Met Pro Lys Ile Thr
            20              25              30
Cys Cys Phe Thr Lys Glu Arg Leu Leu Arg Gly Asn Lys Lys Asn His
            35              40              45
Val Cys Ser Pro Gly Ser Ser Gly Leu Arg His Trp Phe Thr Leu
    50              55              60
Tyr Ala Gly Cys Ala Phe Leu Gln Tyr Gln Cys Ser Arg His Ser Glu
65              70              75              80
Ala Asn
```

```
<210> 751
<211> 162
<212> PRT
<213> Homo sapiens
```

```
<400> 751
Gln Lys Leu Val Ile Glu Asn Phe Asp Asp Glu Gln Ile Trp Gln Gln
1               5               10              15
Leu Glu Leu Gln Asn Glu Pro Ile Leu Gln Tyr Phe Gln Asn Ala Val
            20              25              30
Ser Glu Thr Ile Asn Asp Glu Asp Ile Ser Leu Leu Pro Glu Ser Glu
            35              40              45
Glu Gln Glu Arg Glu Glu Asp Gly Ser Glu Ile Glu Ala Asp Asp Lys
    50              55              60
Glu Asp Leu Glu Asp Leu Glu Glu Glu Glu Val Ser Asp Met Gly Asn
65              70              75              80
Asp Asp Pro Glu Met Gly Glu Arg Ala Glu Asn Ser Ser Lys Ser Asp
            85              90              95
Leu Arg Lys Ser Pro Val Phe Ser Asp Glu Asp Ser Asp Leu Asp Phe
            100             105             110
Asp Ile Ser Lys Leu Glu Gln Gln Ser Lys Val Gln Asn Lys Gly Gln
            115             120             125
Gly Lys Pro Arg Glu Lys Ser Ile Val Asp Asp Lys Phe Phe Lys Leu
```

```
        130                    135                    140
Ser Glu Met Glu Ala Tyr Leu Glu Asn Ile Glu Lys Glu Glu Glu Pro
145                    150                    155                    160
Lys Arg


        <210> 752
        <211> 120
        <212> PRT
        <213> Homo sapiens


        <400> 752
Ala Ser Ile Ser Glu Ser Leu Lys Asn Leu Ser Ser Thr Met Asp Phe
1               5                   10                  15
Ser Leu Gly Phe Pro Cys Pro Leu Phe Cys Thr Leu Leu Cys Cys Ser
            20              25                  30
Asn Leu Leu Ile Ser Lys Ser Arg Ser Glu Ser Ser Ser Leu Lys Thr
            35              40                  45
Gly Leu Phe Leu Arg Ser Asp Leu Leu Glu Phe Ser Ala Leu Ser Pro
    50              55                  60
Ile Ser Gly Ser Ser Leu Pro Met Ser Asp Thr Ser Ser Ser Ser Lys
65              70                  75                  80
Ser Ser Arg Ser Ser Leu Ser Ser Ala Ser Ile Ser Glu Pro Ser Ser
            85              90                  95
Ser Arg Ser Cys Ser Ser Leu Ser Gly Arg Arg Leu Ile Ser Ser Ser
            100             105             110
Leu Ile Val Ser Leu Thr Ala Phe
            115             120


        <210> 753
        <211> 143
        <212> PRT
        <213> Homo sapiens


        <400> 753
Xaa Ala Cys Pro Xaa Ile Lys Val Xaa Ser Asn Phe Pro Xaa Ile Xaa
1               5                   10                  15
Met Xaa Glu Xaa Ala Pro Val Xaa Val Ser Xaa Ala Ala Phe Xaa Ala
            20              25                  30
Xaa Xaa Xaa Xaa Xaa Xaa Lys Asn Lys Xaa Xaa Xaa Ile Lys Xaa Xaa
            35              40                  45
Ala Glu Lys Xaa Ala Pro Ala Lys Asn Xaa Xaa Xaa Xaa Lys Lys Lys
    50              55                  60
Xaa Gln Xaa Xaa Xaa Lys Ile Lys Xaa Lys Glu Lys Xaa Arg Xaa Xaa
65              70                  75                  80
Xaa Xaa Xaa Thr Xaa Val Xaa Gln Ala Gly Lys Ser Ser Lys Xaa Xaa
            85              90                  95
Xaa Trp Xaa Lys Leu Lys Gln Xaa Xaa Lys Xaa Gly Lys Ala Ser Xaa
            100             105             110
Ile Lys Asp Glu Gly Lys Xaa Xaa Xaa Leu Lys Xaa Xaa Gln Ala Phe
            115             120             125
Phe Phe Xaa Phe Gln Asp Gln Val Lys Met Gln Ile Asn Xaa Ala
    130             135                 140


        <210> 754
        <211> 66
        <212> PRT
        <213> Homo sapiens


        <400> 754
Asn Gln Arg His Leu Glu Lys His Met Ile Asp Phe Phe Ala Ser Arg
1               5                   10                  15
Met Pro Glu Thr Leu His Leu Pro His Gly Thr Met Arg Gln Ser Pro
```

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```
                      20                  25                  30
        Asn Pro Met Ser Ala Leu Glu Arg Tyr Ser Tyr Tyr Tyr Ser Cys Lys
                  35                  40                  45
        Thr Ile Asn Gln Leu Ile His Ile Cys Thr Ala Gly Ser Pro Arg Asp
    5             50                  55                  60
        Lys Ile
        65


                <210> 755
   10           <211> 69
                <212> PRT
                <213> Homo sapiens


                <400> 755
   15   Asn Thr Ser Asn Ile Pro Phe Ile Ala Tyr Val Thr Tyr Ser Asn Glu
        1               5                  10                  15
        Tyr Asn Lys Leu Leu Phe Lys Lys Val Arg His Met Lys Ser Leu Leu
                  20                  25                  30
        Cys Lys Phe His Val Ile Leu Lys Phe Leu Leu Ala Asn Lys Ser Ile
   20             35                  40                  45
        Cys Thr Ile Glu Pro Glu Thr Ser Arg Lys Ala His Asp Arg Phe Phe
                  50                  55                  60
        Cys Lys Gln Asn Ala
        65
   25
                <210> 756
                <211> 91
                <212> PRT
                <213> Homo sapiens
   30
                <400> 756
        Trp Phe Cys Asn Cys Asn Ser Ser Cys Ile Val Leu Met Gln Thr Leu
        1               5                  10                  15
        Asp Leu Val Thr Val Ser Leu Cys His Glu Val Asn Val Met Phe Gln
   35             20                  25                  30
        Ala Phe Cys Leu Gln Lys Asn Leu Ser Cys Ala Phe Leu Asp Val Ser
                  35                  40                  45
        Gly Ser Ile Val Gln Met Leu Leu Leu Ala Asn Arg Asn Phe Lys Ile
                  50                  55                  60
   40   Thr Trp Asn Leu His Lys Arg Leu Phe Met Cys Leu Thr Phe Leu Lys
        65                  70                  75                  80
        Arg Ser Leu Leu Tyr Ser Leu Glu Tyr Val Thr
                          85                  90

   45           <210> 757
                <211> 63
                <212> PRT
                <213> Homo sapiens

   50           <400> 757
        Asn Ser Tyr Xaa Leu Ile Lys Xaa Phe Ala Leu Xaa Asn Xaa Xaa His
        1               5                  10                  15
        Xaa Xaa Lys Xaa Met Xaa Asp Phe Phe Ala Ser Xaa Met Pro Glu Thr
                  20                  25                  30
   55   Leu His Leu Pro Tyr Gly Thr Met Arg Gln Xaa Pro Asn Pro Met Xaa
                  35                  40                  45
        Ala Leu Xaa Arg Tyr Ser Tyr Phe Tyr Xaa Xaa Glu Thr Ile Asn
                  50                  55                  60

   60           <210> 758
                <211> 62
                <212> PRT
                <213> Homo sapiens
```

279

```
            <400> 758
       Asp Ser Xaa Gln Ile Gln Cys Xaa His Xaa Asn Asp Thr Ala Thr Phe
        1           5               10              15
  5    Thr Xaa Ala Lys Pro Leu Ile Xaa Leu Ser Xaa Tyr Val Gln Xaa Gly
                20      .          25              30
       Pro His Val Thr Lys Ser Xaa Ala Glu Xaa Phe Gly Ser Xaa Asn Val
                35              40              45
       Asp Pro Ala Gly Xaa Arg Xaa Ser Lys Leu Leu Xaa Pro Phe
 10             50              55              60


            <210> 759
            <211> 68
            <212> PRT
 15         <213> Homo sapiens


            <400> 759
       Thr Xaa Asn Ile Pro Phe Ile Ala Tyr Val Xaa Tyr Ser Asn Glu Tyr
        1           5               10              15
 20    Asn Lys Leu Leu Phe Lys Lys Val Arg Xaa Met Lys Ser Leu Leu Xaa
                20              25              30
       Lys Phe His Val Ile Leu Lys Phe Leu Xaa Ala Asn Lys Ser Xaa Cys
                35              40              45
       Thr Ile Xaa Xaa Xaa Thr Xaa Xaa Lys Xaa His Asp Xaa Phe Phe Cys
 25             50              55              60
       Lys Xaa Asn Ala
       65


            <210> 760
 30         <211> 91
            <212> PRT
            <213> Homo sapiens


            <400> 760
 35    Trp Phe Arg Xaa Cys Lys Ser Ser Cys Ile Val Xaa Met Xaa Thr Leu
        1           5               10              15
       Asp Leu Xaa Thr Val Ser Leu Cys His Lys Val Asn Val Met Phe Gln
                20              25              30
       Ala Xaa Cys Leu Gln Lys Asn Xaa Ser Xaa Ala Phe Xaa Xaa Xaa Xaa
 40             35              40              45
       Gly Xaa Ile Val Gln Xaa Leu Leu Leu Ala Xaa Arg Asn Phe Lys Ile
                50      .          55              60
       Thr Trp Asn Leu Xaa Lys Arg Leu Phe Met Xaa Leu Thr Phe Leu Lys
       65              70              75              80
 45    Arg Ser Leu Leu Tyr Ser Leu Glu Tyr Xaa Thr
                        85              90


            <210> 761
            <211> 46
 50         <212> PRT
            <213> Homo sapiens


            <400> 761
       His Phe Ser Leu Leu Met Pro Leu Gly Leu Gly Arg Arg Lys Lys Ala
 55     1           5               10              15
       Pro Pro Leu Val Glu Asn Glu Glu Ala Glu Pro Gly Arg Gly Gly Leu
                20              25              30
       Gly Val Gly Glu Pro Gly Pro Leu Gly Gly Gly Ser Gly
                35              40              45
 60
            <210> 762
            <211> 46
            <212> PRT
```

280

<213> Homo sapiens

<400> 762
```
Pro Asp Pro Pro Pro Pro Arg Gly Pro Gly Ser Pro Thr Pro Ser Pro
1               5                   10                  15
Pro Arg Pro Gly Ser Ala Ser Ser Phe Ser Thr Arg Gly Gly Ala Phe
            20                  25                  30
Phe Arg Arg Pro Ser Pro Ser Gly Met Ser Ser Glu Lys Trp
            35                  40                  45
```

<210> 763
<211> 181
<212> PRT
<213> Homo sapiens

<400> 763
```
Ala Ala Gln Gly Gln Trp Xaa Gly Gly Gly Pro Gly Pro Leu Pro Arg
1               5                   10                  15
Ser Asn Gly Thr Ile Pro Ser Leu Val Pro Ser Leu Ala Gly Val Pro
            20                  25                  30
Gly Pro Pro Val Pro Cys Ser Pro Pro Thr Ser Val Gly Ser Gly Thr
            35                  40                  45
Gly Arg Gly Gly Ile Ser Gln Ile Gly Gly Pro Pro Pro Pro Pro Pro
        50                  55                  60
Leu Ser Thr Ile Ser Cys Gln Thr Gly Pro Ser Val Ser Leu Gly Pro
65                  70                  75                  80
Trp Val Leu Phe Gly Gly His Xaa Leu Pro Ser Phe Leu Thr Gln Gly
                85                  90                  95
Ile Gln Gly Arg Gly Leu Ser Phe Pro Pro Ala Asn Ala Ile Met Pro
            100                 105                 110
Ser Pro Leu Leu Arg Gly Ala Pro Ser Leu Xaa Ser Leu Leu Pro Pro
        115                 120                 125
His Leu Thr Xaa Val Cys Cys Glu Pro Arg Asn Leu Leu Pro Thr Ser
    130                 135                 140
Asn Phe Ser Phe Gln Ala His Pro Trp Pro Arg Ala Gly Gly Arg Glu
145                 150                 155                 160
Gly Arg Trp Arg Trp Val Phe Val Ser Glu Phe Ala Val Leu Asn Ile
            165                 170                 175
Lys Asn Gln Ser Ala
                180
```

<210> 764
<211> 107
<212> PRT
<213> Homo sapiens

<400> 764
```
Pro Pro Asn Arg Thr Gln Gly Pro Arg Glu Thr Glu Gly Pro Val Trp
1               5                   10                  15
Gln Leu Met Val Glu Ser Gly Gly Gly Gly Gly Pro Pro Ile Trp
            20                  25                  30
Leu Ile Pro Pro Leu Pro Val Pro Asp Pro Thr Glu Val Gly Gly Glu
        35                  40                  45
Gln Gly Thr Gly Gly Pro Gly Thr Pro Ala Arg Leu Gly Thr Arg Glu
    50                  55                  60
Gly Met Val Pro Leu Glu Arg Gly Lys Gly Pro Gly Pro Pro Pro Xaa
65                  70                  75                  80
His Cys Pro Trp Ala Ala Xaa Leu Ala Gln Leu Glu Ala Xaa Val Leu
            85                  90                  95
Xaa Xaa Xaa Pro Cys Trp Gly Pro Pro Gln Val
            100                 105
```

<210> 765
```
                    281
```

```
                <211> 114
                <212> PRT
                <213> Homo sapiens

                <400> 765
        Ala Pro Gly Gly Ala Pro Ser Arg Asp Xaa Xaa Ser Gly Xaa Glu Pro
        1           5               10              15
        Pro Ala Glu Leu Xaa Lys Gln Pro Lys Asp Asn Xaa Arg Glu Val Gly
                    20              25              30
        Gln Ala Pro Cys Pro Ala Pro Met Gly Pro Ser Pro Pro Trp Phe Pro
                    35              40              45
        Val Trp Pro Gly Ser Pro Ala Pro Leu Cys Pro Val Pro His Leu Pro
                50              55              60
        Gln Leu Gly Gln Ala Gln Gly Gly Glu Gly Ser Ala Lys Leu Gly Gly
        65              70              75              80
        His Pro Arg Leu His His Phe Pro Pro Ser Ala Ala Lys Leu Val Pro
                    85              90              95
        Leu Ser Pro Trp Gly Leu Gly Phe Cys Leu Gly Val Met Xaa Phe Leu
                    100             105             110
        Val Ser


                <210> 766
                <211> 129
                <212> PRT
                <213> Homo sapiens

                <400> 766
        Ser Ser Ser Asn Leu Arg Leu Ser Phe Leu Ile Asn Glu Asn Ile Leu
        1           5               10              15
        Gly Lys Cys Phe Arg Ser Gly Pro Ser Cys Ala Gly Pro Arg Ile Ser
                    20              25              30
        Pro Leu Ala Ala Gln Tyr Glu Cys Pro Arg Pro Ser Leu Leu Ile Met
                    35              40              45
        Ala Ser Val Pro Lys Thr Asn Lys Ile Glu Pro Arg Ser Tyr Ser Ile
                50              55              60
        Ile Pro Ser Cys Gly Ile Gln Ala Ala Arg Ala Cys Phe Glu His Ser
        65              70              75              80
        Asn Phe Phe Lys Val Asn Ala Ser Gly Pro Ala Gly His Ser Ala Lys
        40              85              90              95
        Ser Ile Glu Gly Ala Pro Arg Gly Lys Gly Arg Gly Arg Ala Val Ala
                    100             105             110
        Arg Leu Ala Ala Asp Arg Pro Pro Ala Pro Lys Ile Gln Leu Arg Ala
                    115             120             125
        Phe


                <210> 767
                <211> 157
                <212> PRT
                <213> Homo sapiens

                <400> 767
        Lys Met Ala Ala Gly Phe Lys Thr Val Glu Pro Xaa Glu Tyr Tyr Arg
        1           5               10              15
        Arg Phe Leu Lys Glu Asn Cys Arg Pro Asp Gly Arg Glu Leu Gly Glu
                    20              25              30
        Phe Arg Thr Thr Thr Val Asn Ile Gly Ser Ile Ser Thr Ala Asp Gly
                    35              40              45
        Ser Ala Leu Val Lys Leu Gly Asn Xaa Thr Xaa Ile Cys Gly Val Lys
                50              55              60
        Ala Glu Phe Ala Ala Pro Ser Thr Asp Ala Pro Asp Lys Gly Tyr Val
        65              70              75              80
```

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```
          Val Pro Asn Val Asp Leu Pro Pro Leu Cys Ser Ser Arg Phe Arg Ser
                        85                  90              95
          Gly Pro Pro Gly Glu Glu Ala Gln Val Ala Ser Gln Phe Ile Ala Asp
                        100             105             110
  5       Val Ile Glu Asn Ser Gln Ile Ile Gln Lys Glu Asp Leu Cys Ile Ser
                        115             120             125
          Pro Gly Lys Leu Val Trp Val Leu Tyr Cys Asp Leu Ile Cys Leu Asp
                        130             135             140
          Tyr Asp Gly Asn Ile Leu Asp Ala Cys Thr Phe Ala Leu
  10      145                 150             155
```

```
              <210> 768
              <211> 171
              <212> PRT
  15          <213> Homo sapiens
```

```
              <400> 768
          Lys Met Ala Ala Gly Phe Lys Thr Val Glu Pro Xaa Glu Tyr Tyr Arg
          1               5                   10              15
  20      Arg Phe Leu Lys Glu Asn Cys Arg Pro Asp Gly Arg Glu Leu Gly Glu
                        20                  25              30
          Phe Arg Thr Thr Thr Val Asn Ile Gly Ser Ile Ser Thr Ala Asp Gly
                        35                  40              45
          Ser Ala Leu Val Lys Leu Gly Asn Xaa Thr Xaa Ile Cys Gly Val Lys
  25          50                  55                  60
          Ala Glu Phe Ala Ala Pro Ser Thr Asp Ala Pro Asp Lys Gly Tyr Val
          65                  70                  75                  80
          Val Pro Asn Val Asp Leu Pro Pro Leu Cys Ser Ser Arg Phe Arg Ser
                        85                  90              95
  30      Gly Pro Pro Gly Glu Glu Ala Gln Val Ala Ser Gln Phe Ile Ala Asp
                        100             105             110
          Val Ile Glu Asn Ser Gln Ile Ile Gln Lys Glu Asp Leu Cys Ile Ser
                        115             120             125
          Pro Gly Lys Leu Val Trp Val Leu Tyr Cys Asp Leu Ile Cys Leu Asp
  35          130             135             140
          Tyr Asp Gly Asn Ile Leu Asp Ala Cys Thr Phe Xaa Leu Leu Ala Ala
          145                 150             155                 160
          Leu Lys Asn Val Gln Val Ala Leu Lys Leu Leu
                        165             170
```

```
  40
              <210> 769
              <211> 112
              <212> PRT
              <213> Homo sapiens
  45
              <400> 769
          Gln Leu Pro Glu Val Thr Ile Asn Glu Glu Thr Ala Leu Ala Glu Val
          1               5                   10              15
          Asn Leu Lys Lys Lys Ser Tyr Leu Asn Ile Arg Thr His Pro Val Ala
  50                    20                  25              30
          Thr Ser Phe Ala Val Phe Asp Asp Thr Leu Leu Ile Val Asp Pro Thr
                        35                  40              45
          Gly Glu Glu Glu His Leu Ala Thr Gly Thr Leu Thr Ile Val Met Asp
                        50                  55                  60
  55      Glu Glu Gly Lys Xaa Cys Cys Xaa His Lys Pro Gly Gly Ser Gly Leu
          65                  70                  75                  80
          Thr Gly Ala Lys Leu Gln Asp Cys Met Ser Arg Ala Val Thr Arg His
                        85                  90                  95
          Lys Glu Val Lys Lys Leu Met Asp Glu Val Ile Lys Ser Met Lys Pro
  60                    100             105             110
```

```
              <210> 770
              <211> 87
```

```
           <212> PRT
           <213> Homo sapiens


           <400> 770
 5    Gln His Ala Gly Gly Ser Met Ser Gln Xaa Leu Gln Ala Lys Val Glu
      1               5                   10                  15
      Ile Phe Xaa Lys Met Phe Ile Ser Ala Gly Xaa Glu Gly Thr Glu Arg
                  20                  25                  30
      Cys Thr Xaa Xaa Xaa Xaa Leu Gly Xaa Xaa Xaa Gly His Ala Ala Pro
10                35                  40                  45
      Tyr Asn Arg Trp Ile Leu Xaa Glu Phe Xaa Xaa Asn Xaa Lys Val Xaa
          50                  55                  60
      Thr Glu Leu Ile Ser Tyr Phe Ser Xaa Thr Xaa Gly Thr Pro Ser Ala
      65                  70                  75                  80
15    Ser Gly Phe Thr Asn Glu Thr
                      85


           <210> 771
           <211> 151
20         <212> PRT
           <213> Homo sapiens


           <400> 771
      Phe Phe Ile Phe Cys Arg Tyr Glu Val Ser Pro Cys Cys Ser Gly Trp
25    1               5                   10                  15
      Ser Gln Ala Pro Glu Leu Lys Gln Pro Ala Cys Leu Arg Leu Pro Lys
                  20                  25                  30
      Cys Trp Asp His Lys His Glu Pro Leu Cys Pro Ala Trp His Leu Ile
                  35                  40                  45
30    Cys Glu Ser His Thr Ile Ser Asn Arg Asn Ile Lys Ile Pro Gly His
          50                  55                  60
      Phe Xaa Ser Pro Arg Leu Gly Gln Leu His Ser Leu Thr Cys Ser Val
      65                  70                  75                  80
      Leu Pro Gln Ser Gln Cys Gly Thr Arg Leu Gln Ala Gln His Trp Gly
35                    85                  90                  95
      Cys Ala Asp Arg Ser Trp Phe Lys Ser Gln Leu Pro Ala Leu Glu Pro
                  100                 105                 110
      Tyr Ser Asp Leu Ser Ala Pro Arg Leu Pro Gln Arg Val Leu Leu Gln
          115                 120                 125
40    Pro Val Ser Gln Cys Thr Cys Pro Ala His Glu Leu Thr Glu Leu Met
          130                 135                 140
      Ala Ser Glu Ser Glu Cys Leu
      145                 150


45         <210> 772
           <211> 159
           <212> PRT
           <213> Homo sapiens


50         <400> 772
      Glu Leu Pro Glu Lys Lys Lys Met Lys Tyr Ile Gln Asp Phe Gln Arg
      1               5                   10                  15
      Glu Lys Gln Glu Phe Glu Arg Asn Leu Ala Arg Phe Arg Glu Asp His
                  20                  25                  30
      Pro Asp Leu Ile Gln Asn Ala Lys Ser Asp Ile Pro Glu Lys Pro
55                35                  40                  45
      Lys Thr Pro Gln Gln Leu Trp Tyr Thr His Glu Lys Lys Val Tyr Leu
          50                  55                  60
      Lys Val Arg Pro Asp Glu Ile Met Arg Asp Tyr Ile Gln Lys His Pro
60    65                  70                  75                  80
      Glu Leu Asn Ile Ser Glu Glu Gly Ile Thr Lys Ser Thr Leu Thr Lys
                      85                  90                  95
      Ala Glu Arg Gln Leu Lys Asp Lys Phe Asp Gly Arg Pro Thr Lys Pro
```

```
                    100                    105                    110
        Pro Pro Asn Ser Tyr Ser Leu Tyr Cys Ala Glu Leu Met Ala Asn Met
                    115                    120                    125
        Lys Asp Val Pro Ser Thr Glu Ala His Gly Ala Val Gln Pro Ala Val
  5             130                    135                    140
        Glu Ala Ala Val Pro Glu Gly Glu Gly Arg Leu Xaa Gln Glu Val
        145                    150                    155
```

```
              <210> 773
 10           <211> 151
              <212> PRT
              <213> Homo sapiens


              <400> 773
 15     Lys Lys Glu Arg Lys Trp Gly Arg Pro Gly Gly Gln Gly Thr Glu His
        1               5                    10                    15
        Gly Gly Glu Thr Lys Val Val Ser Trp Gly Gly Glu Leu Leu Gly Ser
                    20                    25                    30
        Pro Trp Leu Pro Trp Gly Gly Ala Glu Pro Gln Leu Glu Ser Glu Ser
 20             35                    40                    45
        Glu Glu Ser Pro Glu Glu Glu Glu Leu Glu Leu Leu Pro Ser Asp Ser
                50                    55                    60
        Leu Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
        65                    70                    75                    80
 25     Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp Ser Asp Leu Asp Cys Arg
                            85                    90                    95
        Val Val Arg Leu Asp Leu Gly Phe Gly Pro Arg Ser Leu Val Met Leu
                    100                    105                    110
        Leu Arg Leu Leu Glu Met Tyr Ser Leu Tyr Ala Ala Arg Ser Trp Gly
 30             115                    120                    125
        Asp Arg Leu Leu Thr Gln Arg Ser Arg Cys Thr Leu Tyr Cys Phe Cys
                130                    135                    140
        Cys Ser Ser Ala Ser Phe Leu
        145                    150
 35
              <210> 774
              <211> 140
              <212> PRT
              <213> Homo sapiens
 40
              <400> 774
        Gly Gly Gly Ala Gly Ala Ala Ala Leu Gly Leu Ile Ile Phe Ile Leu
        1               5                    10                    15
        Ile Val Ile Leu Val Val Val Phe Val Leu Val Ile Leu Ile Leu Phe
 45             20                    25                    30
        Ile Ile Leu Leu Gly Leu Arg Leu Gly Leu Gln Ser Ser Pro Ala Gly
                    35                    40                    45
        Phe Gly Val Trp Ala Ser Gln Leu Gly His Ala Leu Thr Phe Ile Gly
                50                    55                    60
 50     Asp Val Leu Phe Ile Cys Cys Thr Val Leu Gly Arg Gln Ala Leu Asn
        65                    70                    75                    80
        Pro Glu Val Gln Val His Leu Val Leu Leu Leu Leu Leu Gly Gln
                            85                    90                    95
        Leu Phe Val Ser Ala Pro Ser Gly Ser Gly Arg Cys Ala Ala Ser Asp
 55             100                    105                    110
        Cys Arg Ser Pro Pro Cys Ala Pro Ser Ala Ala Gly Gly Ser Xaa Pro
                115                    120                    125
        His Trp Asn Ser Ser Ser Trp Glu Glu Leu Xaa Xaa
                130                    135                    140
 60
              <210> 775
              <211> 130
              <212> PRT
```

                    <213> Homo sapiens

                    <400> 775
        Arg Ser Ala Trp Trp Arg Ser Ala Val Ala Gly Ser Ala Ser Pro Arg
    5   1   5   10   15
        Ala Arg Arg Ser Thr Tyr Lys Lys Leu Ala Glu Glu Gln Gln Lys Gln
                    20   25   30
        Tyr Lys Val His Leu Asp Leu Trp Val Lys Ser Leu Ser Pro Gln Asp
                    35   40   45
    10 Arg Ala Ala Tyr Lys Glu Tyr Ile Ser Asn Lys Arg Lys Ser Met Thr
                50   55   60
        Lys Leu Arg Gly Pro Asn Pro Lys Ser Ser Arg Thr Thr Leu Gln Ser
        65   70   75   80
        Lys Ser Glu Ser Glu Glu Asp Asp Glu Glu Asp Glu Asp Asp Glu Asp
    15   85   90   95
        Glu Asp Asp Asp Glu Asp Asp Asp Glu Asp Glu Asp Asn Glu Ser Glu
                    100   105   110
        Gly Ser Ser Ser Ser Ser Ser Ser Ser Gly Asp Ser Ser Asp Ser Asp
                    115   120   125
    20 Ser Asn
            130

                    <210> 776
                    <211> 165
    25   <212> PRT
                    <213> Homo sapiens

                    <400> 776
        Pro Pro Ala Leu Pro Leu Pro Val Pro Arg Ser Ala Arg His Glu Ile
    30 1   5   10   15
        Pro Arg Arg Gly Ala Thr Arg Gly Arg Val Gly Glu Ala Gln Arg Gln
                    20   25   30
        Pro Leu Pro Ala Met Glu Glu Glu Ala Arg Gly Ala His Leu Arg Pro
                    35   40   45
    35 Pro Glu Pro Val Pro Arg Gln Pro Pro Arg Ala Pro Gln Gly Ala Ala
                50   55   60
        Leu Pro Leu His Pro Gln Gly Gly Leu Arg Gly Ala His Gly Gln Val
        65   70   75   80
        Arg Val Leu His His Arg His His Arg Pro Gln Gly Asp Arg Leu Pro
    40   85   90   95
        Leu Arg Gly Arg Glu Leu Leu Glu Arg Gly His Arg Ala Gly Ala His
                    100   105   110
        Arg Phe Pro Glu Pro Pro Arg Pro Ala Gly Leu Ser Gln Pro Pro Gly
                    115   120   125
    45 Thr His Arg Pro Ala Ala Pro Ala Glu Asp Ala Val Ala Ala Ala Ala
                130   135   140
        Ala Ala Pro Ser Glu Pro Ser Glu Pro Ser Arg Pro Ser Pro Gln Pro
        145   150   155   160
        Lys Pro Arg Thr Pro
    50   165

                    <210> 777
                    <211> 158
                    <212> PRT
    55   <213> Homo sapiens

                    <400> 777
        Ala Cys Ser Pro Pro Ala Pro Ala Arg Ala Pro Arg Ser Cys Ala Ser
        1   5   10   15
    60 Thr Pro Ser Ser Arg Trp Thr Ala Trp Ser Ala Arg Ala Ser Thr Cys
                    20   25   30
        Thr Ser Pro Ser Ser Pro Pro Thr Thr Arg Arg Ser Thr Ser Ala Ala
                    35   40   45

                            2٦٦

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        Arg Ala Arg Ala Ala Gly Thr Arg Pro Ser Arg Trp Arg Ser Ser Ile
            50                  55                  60
        Ser Arg Thr Ala Ala Pro Cys Arg Thr Phe Ala Ala Ala Arg Asn Ala
        65                  70                  75                  80
    5   Pro Thr Arg Arg Thr Arg Arg Gly Arg Arg Gly Cys Arg Gly Arg Arg
                        85                  90                  95
        Thr Leu Arg Ala Leu Gly Ala Leu Gln Ala Ile Pro Ala Ala Gln Thr
                    100                 105                 110
        Pro His Ala Met Ser Pro Pro Arg Ala Ile Arg Trp Thr Ser Arg Thr
   10           115                 120                 125
        Glu Ala Arg Thr Trp Pro Ala Leu Leu Gln Pro Cys Ser Xaa Lys Asn
                130                 135                 140
        Xaa Pro Cys Ala Arg Ile Leu Ala Ser Val Gln Arg Ala Pro
        145                 150                 155
   15
            <210> 778
            <211> 179
            <212> PRT
            <213> Homo sapiens
   20
            <400> 778
        Arg Pro His Cys Arg Ser Gln Ser Arg Ala Arg His Asp Met Lys Ser
            1               5                   10                  15
        Pro Asp Glu Val Leu Arg Glu Gly Glu Leu Glu Lys Arg Ser Asp Ser
   25                   20                  25                  30
        Leu Phe Gln Leu Trp Lys Lys Lys Arg Gly Val Leu Thr Ser Asp Arg
                    35                  40                  45
        Leu Ser Leu Phe Pro Ala Ser Pro Arg Ala Arg Pro Lys Glu Leu Arg
                50                  55                  60
   30   Phe His Ser Ile Leu Lys Val Asp Cys Val Glu Arg Thr Gly Lys Tyr
        65                  70                  75                  80
        Val Tyr Phe Thr Ile Val Thr Thr Asp His Lys Glu Ile Asp Phe Arg
                        85                  90                  95
        Cys Ala Gly Glu Ser Cys Trp Asn Ala Ala Ile Ala Leu Ala Leu Ile
   35               100                 105                 110
        Asp Phe Gln Asn Arg Arg Ala Leu Gln Asp Phe Arg Ser Arg Gln Glu
                    115                 120                 125
        Arg Thr Asp Pro Pro His Pro Pro Arg Thr Pro Trp Leu Pro Arg Pro
                130                 135                 140
   40   Pro His Pro Pro Ser Pro Arg Ser Pro Pro Gly His Pro Arg Ser Pro
        145                 150                 155                 160
        Asn Pro Ala Arg His Glu Pro Ala Ala Gly His Thr Leu Asp Glu Ser
                        165                 170                 175
        Asp Arg Gly
   45
            <210> 779
            <211> 179
            <212> PRT
   50       <213> Homo sapiens

            <400> 779
        Pro Arg Ser Asp Ser Ser Ser Val Trp Pro Ala Ala Gly Ser Trp Arg
        1               5                   10                  15
   55   Ala Gly Phe Gly Leu Arg Gly Trp Pro Gly Gly Leu Arg Gly Leu Gly
                    20                  25                  30
        Gly Cys Gly Gly Arg Gly Ser His Gly Val Leu Gly Gly Cys Gly Gly
                    35                  40                  45
        Ser Val Arg Ser Trp Arg Leu Arg Lys Ser Cys Arg Ala Arg Arg Phe
   60       50                  55                  60
        Trp Lys Ser Met Ser Ala Ser Ala Met Ala Ala Phe Gln Gln Leu Ser
        65                  70                  75                  80
        Pro Ala Gln Arg Lys Ser Ile Ser Leu Trp Ser Val Val Thr Met Val
```

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```
                        85                        90                        95
          Lys Tyr Thr Tyr Leu Pro Val Arg Ser Thr Gln Ser Thr Leu Arg Met
                        100                      105                      110
          Glu Trp Lys Arg Ser Ser Leu Gly Arg Ala Arg Gly Leu Ala Gly Asn
                        115                      120                      125
          Arg Leu Arg Arg Ser Glu Val Ser Thr Pro Arg Phe Phe Phe His Ser
                        130                      135                      140
          Trp Lys Arg Leu Ser Leu Arg Phe Ser Asn Ser Pro Ser Arg Ser Thr
          145                      150                      155                      160
          Ser Ser Gly Asp Phe Met Ser Cys Arg Ala Arg Asp Trp Glu Arg Gln
                                  165                      170                      175
          Cys Gly Arg


                  <210> 780
                  <211> 134
                  <212> PRT
                  <213> Homo sapiens


                  <400> 780
          Ala Trp Arg Cys Thr Arg Val Ser Glu Ala Leu Leu Leu Ser Ala Arg
          1                 5                       10                      15
          Gln Glu Asp Val Cys Arg Arg Arg Ser Ala Gly Pro Val Ala Phe Thr
                        20                      25                      30
          Val Leu Cys Leu Ser Arg Pro Ser Arg Leu Pro Thr Ala Ala Ile Pro
                        35                      40                      45
          Pro Tyr Ser Pro Ser Gly Thr Trp Arg Trp Ser Val Gln Ala Leu Ala
                        50                      55                      60
          Cys Asn Gln His Xaa Ser Leu Gly Leu Val Gln Glu Gly Ser Ser Gly
          65                      70                      75                      80
          Lys Ala Pro Ser Ser Phe Pro Ala Arg Leu Gly Pro Ala Thr Val Arg
                              85                      90                      95
          Leu Arg Xaa Gly Leu Lys Glu Xaa Ala Gly Pro Glu Phe Pro Leu Ala
                        100                      105                      110
          Arg Xaa Glu Leu Xaa Thr Lys Gly Arg Arg Xaa Pro Pro Gly Arg Xaa
                        115                      120                      125
          Xaa Val Pro Pro Leu Ala
                        130


                  <210> 781
                  <211> 130
                  <212> PRT
                  <213> Homo sapiens


                  <400> 781
          Gly Gly Met Ala Ala Val Gly Ser Leu Leu Gly Arg Leu Arg Gln Ser
          1                 5                       10                      15
          Thr Val Lys Ala Thr Gly Pro Ala Leu Arg Arg Leu His Thr Ser Ser
                        20                      25                      30
          Trp Arg Ala Asp Ser Ser Arg Ala Ser Leu Thr Arg Val His Arg Gln
                        35                      40                      45
          Ala Tyr Ala Arg Leu Tyr Pro Val Leu Leu Val Lys Gln Asp Gly Ser
                        50                      55                      60
          Thr Ile His Ile Arg Tyr Arg Glu Pro Arg Arg Met Leu Ala Met Pro
          65                      70                      75                      80
          Ile Asp Leu Asp Thr Leu Ser Pro Glu Glu Arg Arg Ala Arg Leu Arg
                              85                      90                      95
          Lys Arg Glu Ala Gln Leu Gln Ser Arg Lys Glu Tyr Glu Gln Glu Leu
                        100                      105                      110
          Ser Asp Asp Leu His Val Glu Arg Tyr Arg Gln Xaa Trp Thr Arg Thr
                        115                      120                      125
          Lys Lys
                        130
```

```
          <210> 782
          <211> 56
          <212> PRT
 5        <213> Homo sapiens


          <400> 782
     Asn Asp Val Pro Asn Gln Phe Leu Val Tyr Ser Phe Pro Lys Ser Lys
      1           5                  10                  15
10   Ile Thr Lys Val Leu Lys Val His Lys Thr Asp Leu His Leu Cys Ile
                 20                  25                  30
     Pro Phe Gln Ile Asn Pro Lys Ser Met Tyr Ser Met Phe Asn Ser Met
             35                  40                  45
     Gln Tyr Ala Lys Ala Leu Cys Cys
15       50                  55


          <210> 783
          <211> 55
          <212> PRT
20        <213> Homo sapiens


          <400> 783
     Asn Asp Val Pro Asn Gln Phe Leu Val Tyr Ser Phe Pro Lys Ser Lys
      1           5                  10                  15
25   Ile Thr Lys Val Leu Lys Val His Lys Thr Asp Leu His Leu Cys Ile
                 20                  25                  30
     Pro Phe Gln Ile Asn Pro Lys Ser Met Tyr Ser Met Phe Asn Ser Met
             35                  40                  45
     Gln Tyr Ala Lys Ala Leu Cys
30       50                  55


          <210> 784
          <211> 259
          <212> PRT
35        <213> Homo sapiens


          <400> 784
     Lys Leu Ser Ala Leu Phe Ile Asn Leu Ile Ser Asp Pro Ser Arg Trp
      1           5                  10                  15
40   Val Arg Gln Ala Ala Phe Gln Ser Leu Gly Pro Phe Ile Ser Thr Phe
                 20                  25                  30
     Ala Asn Pro Ser Ser Ser Gly Gln Tyr Phe Lys Glu Glu Ser Lys Ser
             35                  40                  45
     Ser Glu Glu Met Ser Val Glu Asn Lys Asn Arg Thr Arg Asp Gln Glu
45       50                  55                  60
     Ala Pro Glu Asp Val Gln Val Arg Pro Glu Asp Thr Pro Ser Asp Leu
     65                  70                  75                  80
     Ser Val Ser Asn Ser Ser Val Ile Leu Glu Asn Thr Met Glu Asp His
                 85                  90                  95
50   Ala Ala Glu Ala Ser Gly Lys Pro Leu Gly Glu Ile Ser Val Pro Leu
                100                 105                 110
     Asp Ser Ser Leu Leu Cys Thr Leu Ser Ser Glu Ser His Gln Glu Ala
             115                 120                 125
     Ala Ser Asn Glu Asn Asp Lys Lys Pro Gly Asn Tyr Lys Ser Met Leu
55       130                 135                 140
     Arg Pro Glu Val Gly Thr Thr Ser Gln Asp Ser Ala Leu Leu Asp Gln
     145                 150                 155                 160
     Glu Leu Tyr Asn Ser Phe His Phe Trp Arg Thr Pro Leu Pro Glu Ile
                 165                 170                 175
60   Asp Leu Asp Ile Glu Leu Glu Gln Asn Ser Gly Gly Lys Pro Ser Pro
                 180                 185                 190
     Glu Gly Pro Glu Glu Glu Ser Glu Gly Pro Val Pro Ser Ser Pro Asn
             195                 200                 205
```

```
     Ile Thr Met Ala Thr Arg Lys Glu Leu Glu Glu Met Ile Glu Asn Leu
         210                 215                 220
     Glu Pro Pro Ile Asp Asp Pro Asp Gly Xaa Ala Gln Val Gly Ser Ala
     225             230                 235                 240
5    Val Arg Cys Thr Thr Cys Phe Gln Xaa Trp Asp Xaa His Glu Glu Xaa
                 245                 250                 255
     His Arg Phe


10          <210> 785
            <211> 103
            <212> PRT
            <213> Homo sapiens

15          <400> 785
     Ile Leu Phe Gly Gln Glu Asn Leu Xaa His Asn Ser Leu Asn Ser Met
     1           5                 10                  15
     Ile Lys Asp Cys Ser Thr Pro Lys Ser Gly His Arg Tyr Val Gln Tyr
                 20                  25                  30
20   Val Lys Lys Leu His Leu Arg Ala Asp His Asp Gln Val Lys Asn Thr
                 35                  40                  45
     Arg His Thr Leu Tyr Arg Leu Ile Asn Phe Leu Gln Val Met Thr Ser
         50                  55                  60
     Met Lys Lys Ser Asp Thr Asp Thr Gln Gln Pro Phe Cys Lys Cys Val
25   65              70                  75                  80
     Gln Gln Tyr Ala Ala Leu Lys Ser Leu Ser Gln Ser Tyr Leu Xaa Trp
                 85                  .90                 95
     His Gln Xaa Leu Xaa Glu Met
                 100
30
            <210> 786
            <211> 218
            <212> PRT
            <213> Homo sapiens

35          <400> 786
     Glu Leu Glu Asp Lys Val Ala Ala Cys Gln Lys Glu Gln Ala Asp Phe
     1           5                 10                  15
     Leu Pro Arg Ile Glu Glu Thr Lys Trp Glu Val Cys Gln Lys Ala Gly
40               20                  25                  30
     Glu Ile Ser Leu Leu Lys Gln Gln Leu Lys Asp Ser Gln Ala Asp Val
                 35                  40                  45
     Ser Gln Lys Leu Ser Glu Ile Val Gly Leu Arg Ser Gln Leu Arg Glu
                 50                  55                  60
45   Gly Arg Ala Ser Leu Arg Glu Lys Glu Glu Gln Leu Leu Ser Leu Arg
     65                  70                  75                  80
     Asp Ser Phe Ser Ser Lys Gln Ala Ser Leu Glu Leu Gly Glu Gly Glu
                 85                  90                  95
     Leu Pro Ala Ala Cys Leu Lys Pro Ala Leu Thr Pro Val Asp Pro Ala
50               100                 105                 110
     Glu Pro Gln Asp Ala Leu Ala Thr Cys Glu Ser Asp Glu Ala Lys Met
         115                 120                 125
     Arg Arg Gln Ala Gly Val Ala Ala Ala Ala Ser Leu Val Ser Val Asp
         130                 135                 140
55   Gly Glu Ala Glu Ala Gly Gly Glu Ser Gly Thr Arg Ala Leu Arg Arg
     145                 150                 155                 160
     Glu Val Gly Arg Leu Gln Ala Glu Leu Ala Ala Glu Arg Arg Ala Arg
                 165                 170                 175
     Glu Arg Gln Gly Ala Ser Phe Ala Glu Glu Arg Arg Val Trp Leu Glu
60       180                 185                 190
     Glu Lys Glu Lys Val Ile Glu Tyr Pro Glu Ser Ser Leu Gln Leu Xaa
                 195                 200                 205
     Leu Arg Xaa Arg Cys Thr Asn Arg Asn Pro
                         296
```

210   215

```
<210> 787
<211> 208
<212> PRT
<213> Homo sapiens


<400> 787
Xaa Gln Leu Gln Ala Ala Phe Trp Val Leu Asp His Leu Leu Leu Phe
1               5                   10                  15
Leu Lys Pro Asn Ala Ala Leu Leu Gly Glu Ala Gly Thr Leu Ala Leu
            20                  25                  30
Pro Gly Pro Pro Leu Ser Arg Gln Leu Gly Leu Gln Pro Pro His Leu
        35                  40                  45
Pro Pro Gln Gly Pro Arg Pro Ala Leu Pro Ala Ser Leu Arg Leu Pro
        50                  55                  60
Val His Gly Asn Gln Gly Gly Ser Gly His Pro Gly Leu Thr Ala
65                  70                  75                  80
His Leu Ser Leu Val Ala Leu Ala Gly Gly Gln Ser Ile Leu Trp Leu
            85                  90                  95
Gly Arg Val His Gly Gly Gln Arg Arg Leu Glu Ala Gly Gly Arg Gln
            100                 105                 110
Leu Ala Phe Ala Gln Leu Gln Ala Gly Leu Leu Ala Ala Glu Gly Val
            115                 120                 125
Pro Gln Ala Glu Gln Leu Leu Leu Leu Leu Pro Gln Arg Ser Pro Ala
        130                 135                 140
Leu Pro Gln Leu Arg Ala Gln Ser His Asp Leu Thr Gln Leu Leu Arg
145                 150                 155                 160
His Ile Arg Leu Arg Val Leu Gln Leu Leu Leu Gln Glu Gly Asp Leu
            165                 170                 175
Ala Ser Leu Leu Ala His Leu Pro Leu Ser Phe Leu Tyr Pro Gly Gln
            180                 185                 190
Glu Val Gly Leu Leu Leu Leu Ala Gly Gly His Leu Val Leu Gln Leu
            195                 200                 205


<210> 788
<211> 130
<212> PRT
<213> Homo sapiens


<400> 788
Arg Arg Ile Leu Ala Ser Ser Leu Ser Gln Val Ala Arg Ala Ser Cys
1               5                   10                  15
Gly Ser Ala Gly Ser Thr Gly Val Ser Ala Gly Leu Arg Gln Ala Ala
            20                  25                  30
Gly Ser Ser Pro Ser Pro Ser Ser Arg Leu Ala Cys Leu Leu Leu Lys
            35                  40                  45
Glu Ser Arg Arg Leu Ser Ser Cys Ser Ser Phe Ser Arg Ser Glu Ala
        50                  55                  60
Arg Pro Ser Arg Ser Cys Glu Arg Ser Pro Thr Ile Ser Leu Asn Phe
65                  70                  75                  80
Cys Asp Thr Ser Ala Cys Glu Ser Phe Ser Cys Cys Phe Arg Arg Glu
            85                  90                  95
Ile Ser Pro Ala Phe Trp His Thr Ser His Leu Val Ser Ser Ile Arg
            100                 105                 110
Gly Arg Lys Ser Ala Cys Ser Phe Trp Gln Ala Ala Thr Leu Ser Ser
            115                 120                 125
Ser Ser
    130


<210> 789
<211> 252
<212> PRT
```

<213> Homo sapiens

<400> 789
```
Val Pro Gln Gly Tyr Pro Gly Gly Val Pro Thr Phe Phe Arg Asp Met
1               5               10              15
Lys Gln Gly Leu Leu Ser Val Gly Ile Gly Gly Arg Glu Ser Arg Asn
        20              25              30
Gly Cys Leu Asp Val Glu Lys Asp Cys Ser Ile Thr Lys Phe Leu Asn
        35              40              45
Arg Ile Leu Gly Leu Glu Val His Lys Gln Asn Ala Leu Phe Gln Tyr
        50              55              60
Phe Ser Asp Thr Phe Asp His Leu Ile Glu Met Asp Lys Arg Glu Gly
65              70              75              80
Lys Tyr Asp Met Gly Ile Leu Asp Leu Ala Pro Gly Ile Glu Glu Ile
                85              90              95
Tyr Glu Glu Ser Gln Gln Val Phe Leu Ala Pro Gly His Pro Gln Asp
                100             105             110
Gly Gln Val Val Phe Tyr Lys Ile Ser Val Asp Arg Gly Leu Lys Trp
        115             120             125
Glu Asp Ala Phe Ala Lys Ser Leu Ala Leu Thr Gly Pro Tyr Asp Gly
        130             135             140
Phe Tyr Leu Ser Tyr Lys Val Arg Gly Asn Lys Pro Ser Cys Leu Leu
145             150             155             160
Ala Glu Gln Asn Arg Gly Gln Phe Phe Thr Val Tyr Lys Pro Asn Ile
                165             170             175
Gly Arg Gln Ser Gln Leu Glu Ala Leu Asp Ser Leu Arg Arg Lys Phe
                180             185             190
His Arg Val Thr Ala Glu Glu Ala Lys Gly Ala Leu Gly Glu Trp Leu
        195             200             205
Arg Phe Val Ala Asp Ala Leu Gln Ala Thr Ala Pro Gly Thr Gly Thr
        210             215             220
Cys Arg Leu Ala Gln Glu Gly Xaa Gly Leu Xaa Ala Gly Ala Cys Gly
225             230             235             240
Leu Arg His Gln Leu His Ala Cys Xaa Ala Pro Leu
                245             250
```

<210> 790
<211> 94
<212> PRT
<213> Homo sapiens

<400> 790
```
Arg Gly Gln Gly Arg Ala Gly Gly Gly Arg Ile Ala Tyr Ile Ser Arg
1               5               10              15
Gly Leu Pro His Gly Ala Pro Glu Thr Arg Gly Pro Glu His Leu Gly
        20              25              30
Phe Pro Glu Phe Leu Ala Leu Gly Thr Thr Arg Phe His Gly Phe Gln
        35              40              45
Gly Phe Gly Pro Thr Glu Pro Leu Trp Val Pro Ser Pro Arg Ala Ala
50              55              60
Thr Arg Ser Pro Phe Leu Leu Gly Arg Arg Gly Thr Glu Arg Ala Leu
65              70              75              80
Pro Arg Pro Gly Pro Gln Leu Ser Xaa Trp Ala Pro Gln Gly
                85              90
```

<210> 791
<211> 225
<212> PRT
<213> Homo sapiens

<400> 791
```
Leu Lys Ala Lys Asp Gln Gly Lys Pro Glu Val Gly Glu Tyr Ala Lys
1               5               10              15
```

```
Leu Glu Lys Ile Asn Ala Glu Gln Gln Leu Lys Ile Gln Glu Leu Gln
         20                      25              30
Glu Lys Leu Glu Lys Ala Val Lys Ala Ser Thr Glu Ala Thr Glu Leu
         35              40                  45
Leu Gln Asn Ile Arg Gln Ala Lys Glu Arg Ala Glu Arg Glu Leu Glu
         50              55                  60
Lys Leu Gln Asn Arg Glu Asp Ser Ser Glu Gly Ile Arg Lys Lys Leu
65                  70              75                      80
Val Glu Ala Glu Glu Arg Arg His Ser Leu Glu Asn Lys Val Lys Arg
                 85                  90                      95
Leu Glu Thr Met Glu Arg Arg Glu Asn Arg Leu Lys Asp Asp Ile Gln
             100                 105                 110
Thr Lys Ser Gln Gln Ile Gln Gln Met Ala Asp Lys Ile Leu Glu Leu
         115                 120                 125
Glu Glu Lys His Arg Glu Ala Gln Val Ser Ala Gln His Leu Glu Val
         130                 135                 140
His Leu Lys Gln Lys Glu Gln His Tyr Glu Glu Lys Ile Lys Val Leu
145                 150                 155                     160
Asp Asn Gln Ile Lys Lys Asp Leu Ala Asp Lys Glu Thr Leu Glu Asn
20                  165                 170                 175
Met Met Gln Arg His Glu Glu Glu Ala His Glu Lys Gly Lys Ile Leu
             180                 185                 190
Ser Glu Gln Lys Ala Met Ile Asn Ala Met Asp Ser Lys Ile Arg Ser
         195                 200                 205
Leu Glu Gln Xaa Ile Val Glu Leu Ser Glu Ala Asn Lys Leu Ala Ala
         210                 215                 220
Lys
225


        <210> 792
        <211> 129
        <212> PRT
        <213> Homo sapiens


        <400> 792
Asn Ala Lys Thr Glu Arg Pro Ile Phe Xaa Asp Leu Ser Lys Tyr Trp
 1               5                  10                  15
Gly Pro Arg Xaa Lys Thr Ser Ala Asn Ile Gln Ser Asn Leu Pro Trp
             20                  25                  30
Gly Arg Glu Gly Arg Glu Tyr Asp Pro Thr Asp Ser Lys Gln His Ile
         35                  40                  45
Lys Arg His Ser Arg Thr Phe Ala Lys Gly Ala Thr Thr Trp Arg Phe
     50                  55                  60
Val Gly Val Ser Asn Lys Lys Ala Leu Arg Leu Lys His Xaa Xaa Glu
65                  70                  75                      80
Gly Ala Gly Met Gln Ala Arg Leu Gln Ser Gly Lys Gly Ser Glu Leu
             85                  90                  95
Xaa Thr Gln Leu Lys Thr Arg Ser Cys Ser Pro Ala Xaa Gly Glu Thr
         100                 105                 110
Gly Leu Pro Leu Ser Leu Pro Lys Arg Cys Leu Gly Leu Leu Arg Arg
         115                 120                 125
Ala


        <210> 793
        <211> 92
        <212> PRT
        <213> Homo sapiens


        <400> 793
Glu Tyr Lys Val Ser Cys Lys Tyr Val Gln Ser Phe Glu Leu Val Leu
 1               5                  10                  15
Xaa Ser Arg Lys Gln Phe Thr Asp Xaa Thr His Asn Ile His Phe Gln
```

```
                        20                    25                    30
        Gly Ser Arg Ser Pro Phe Leu Met Glu Ile Leu Asn Glu Met Pro Arg
                35                    40                    45
        Leu Lys Asp Pro Phe Ser Xaa Thr Phe Pro Asn Thr Gly Asp Gln Xaa
 5          50                    55                    60
        Thr Lys Leu Gln Gln Thr Phe Asn Gln Ile Cys Pro Gly Asp Gly Arg
        65                    70                    75                    80
        Gly Gly Ser Thr Thr Pro Gln Thr Pro Ser Asn Thr
                        85                    90

10
                <210> 794
                <211> 219
                <212> PRT
                <213> Homo sapiens
15
                <400> 794
        Ser Ala Met Ser Ser Asp Arg Met Asp Cys Gly Arg Lys Val Arg Val
        1                   5                   10                    15
        Glu Ser Gly Tyr Phe Ser Leu Glu Lys Thr Lys Gln Asp Leu Lys Ala
20              20                    25                    30
        Glu Glu Gln Gln Leu Pro Pro Pro Leu Ser Pro Pro Ser Pro Ser Thr
                35                    40                    45
        Pro Asn His Arg Arg Ser Gln Val Ile Glu Lys Phe Glu Ala Leu Asp
                50                    55                    60
25      Ile Glu Lys Ala Glu His Met Glu Thr Asn Ala Val Gly Pro Ser Gln
        65                    70                    75                    80
        Ser Ser Asp Thr Arg Gln Gly Arg Ser Glu Lys Arg Ala Phe Pro Arg
                        85                    90                    95
        Lys Arg Asp Phe Thr Asn Glu Ala Pro Pro Ala Pro Leu Pro Asp Ala
30                      100                   105                   110
        Ser Ala Ser Pro Leu Ser Pro His Arg Arg Ala Lys Ser Leu Asp Arg
                115                   120                   125
        Arg Ser Thr Glu Pro Ser Val Thr Pro Asp Leu Leu Asn Phe Lys Lys
                130                   135                   140
35      Gly Trp Leu Thr Lys Gln Tyr Glu Asp Gly Gln Trp Lys Lys His Trp
        145                   150                   155                   160
        Phe Val Leu Ala Asp Gln Ser Leu Arg Tyr Tyr Arg Asp Ser Val Ala
                        165                   170                   175
        Glu Glu Ala Ala Asp Leu Asp Gly Glu Ile Asp Leu Ser Ala Cys Tyr
40                      180                   185                   190
        Asp Val Thr Glu Tyr Pro Val Gln Xaa Lys Leu Trp Leu Pro Asp Thr
                195                   200                   205
        Tyr Lys Gly Gly Arg Ser Leu Pro Leu Ser Pro
                210                   215
45
                <210> 795
                <211> 77
                <212> PRT
                <213> Homo sapiens
50
                <400> 795
        Arg Gln Gln Glu Val Asn Thr Ala Glu Ser Gly Val Asp Asn Pro Xaa
        1                   5                   10                    15
        Ala Ser Xaa Thr His Xaa Met Pro Thr Val Asn Asp Asp His Asn Arg
55              20                    25                    30
        Asn Xaa Asn Asn Asn Asn Lys Thr Lys Val Gln Val Lys Asn Xaa Ala
                35                    40                    45
        Trp Gly Val Leu Leu Gln Xaa Trp Gly Lys Arg Val Leu Asn Phe Gly
                50                    55                    60
60      Trp Asp Thr Pro Ser Leu Ser Ser Ser Pro Trp Ile Lys
        65                    70                    75

                <210> 796
```

```
<211> 99
<212> PRT
<213> Homo sapiens

<400> 796
Leu Ile Gln Gly Leu Glu Glu Arg Leu Gly Val Ser His Pro Lys Leu
1               5                   10                  15
Ser Thr Arg Phe Pro Gln Xaa Cys Ser Ser Thr Pro Gln Ala Xaa Phe
            20                  25                  30
Phe Thr Trp Thr Phe Val Leu Leu Leu Leu Xaa Leu Arg Leu Trp
            35                  40                  45
Ser Ser Leu Thr Val Gly Met Xaa Cys Xaa Arg Leu Ala Xaa Gly Leu
        50                  55                  60
Ser Thr Pro Leu Ser Ala Val Leu Thr Ser Cys Cys Leu His Gln Ser
65                  70                  75                  80
Phe Phe Pro Trp Tyr Ser Lys Ile Arg Pro Xaa Val Gly Val Gly Gly
                85                  90                  95
His Leu Cys
```

```
<210> 797
<211> 138
<212> PRT
<213> Homo sapiens

<400> 797
Ile His Thr Tyr Ile His Thr Tyr Ile His Thr Tyr Ile His Thr Ser
1               5                   10                  15
Ile His Ala Tyr Arg Tyr Thr Arg Lys Lys Lys Arg Lys Glu Lys Lys
            20                  25                  30
Glu Lys Met Lys Glu Lys Ala Leu Tyr Cys Tyr Trp Ala Arg Ala Phe
            35                  40                  45
Ser Leu Ser Val Ser Leu Cys Ser Ser Leu Ser Phe Ser Leu Cys Leu
        50                  55                  60
Phe Leu Cys Leu Ser Val Ser Phe Phe Leu Ser Val Ser Val Ser Val
65                  70                  75                  80
Phe Val Ser Leu Ser Pro Ser Leu Pro Val Ser Leu Cys Leu Ser Ser
                85                  90                  95
Val Ser Leu Cys Leu Ser Met Ser Phe Ser Val Cys Leu Phe Leu Cys
                100                 105                 110
Leu Ser Ala Ser Leu Phe Leu Phe Leu Cys Leu Ser Val Gly Leu Ser
        115                 120                 125
Leu Ser Val Cys Leu Ser Val Ser Leu Ser
        130                 135
```

```
<210> 798
<211> 103
<212> PRT
<213> Homo sapiens

<400> 798
Lys Lys Arg His Cys Ile Ala Thr Gly Leu Gly Pro Ser Leu Cys Leu
1               5                   10                  15
Phe Leu Ser Val Arg Leu Cys Leu Ser Leu Cys Val Ser Phe Ser Val
            20                  25                  30
Cys Leu Ser Leu Ser Phe Ser Leu Ser Leu Ser Leu Ser Leu Ser Leu
        35                  40                  45
Ser Leu Pro Leu Cys Leu Ser His Cys Val Cys Leu Leu Ser Leu Ser
        50                  55                  60
Val Cys Leu Cys Leu Ser Leu Ser Val Ser Phe Ser Val Cys Leu Pro
65                  70                  75                  80
Leu Ser Phe Phe Phe Cys Val Ser Leu Ser Val Ser Leu Ser Leu Ser
                85                  90                  95
```

```
Val Cys Leu Ser Leu Ser Leu
            100


        <210> 799
        <211> 95
        <212> PRT
        <213> Homo sapiens


        <400> 799
Glu Arg Glu Thr Asp Arg Gln Thr Glu Arg Glu Arg Pro Thr Glu Arg
 1                   5                   10                  15
His Arg Lys Arg Lys Arg Glu Ala Asp Arg Gln Arg Lys Arg Gln Thr
            20                  25                  30
Glu Lys Asp Ile Asp Arg Gln Arg Glu Thr Glu Asp Arg His Ser Glu
         35                  40                  45
Thr Gly Arg Glu Gly Glu Arg Glu Thr Lys Thr Glu Thr Glu Thr Glu
         50                  55                  60
Arg Lys Lys Glu Thr Asp Arg Gln Arg Lys Arg His Arg Glu Lys Asp
65                  70                  75                  80
Arg Asp Glu Gln Arg Glu Thr Asp Arg Glu Lys Ala Leu Ala Gln
                85                  90                  95


        <210> 800
        <211> 100
        <212> PRT
        <213> Homo sapiens


        <400> 800
Asp Arg Gln Arg Gly Arg Glu Arg Asp Lys Asp Arg Asp Arg Asp Arg
 1                   5                   10                  15
Glu Lys Glu Arg Asp Arg Gln Thr Glu Lys Glu Thr Gln Arg Glu Arg
            20                  25                  30
Gln Arg Arg Thr Glu Arg Asn Arg Gln Arg Glu Gly Pro Ser Pro Val
         35                  40                  45
Ala Ile Gln Cys Leu Phe Phe His Phe Leu Phe Leu Phe Phe Ser Phe
         50                  55                  60
Phe Leu Ser Cys Ile Ser Val Cys Met Asp Gly Cys Met Tyr Val Cys
65                  70                  75                  80
Met Tyr Val Cys Met Tyr Val Cys Val Tyr Leu Phe Met Tyr Val Phe
                85                  90                  95
Ile Trp Arg Pro
            100


        <210> 801
        <211> 185
        <212> PRT
        <213> Homo sapiens


        <400> 801
Thr Val Gly Thr Ala Met Ala Pro Val Leu Ser Lys Asp Ser Ala Asp
 1                   5                   10                  15
Ile Glu Ser Ile Leu Ala Leu Asn Pro Arg Thr Gln Thr His Ala Thr
            20                  25                  30
Leu Cys Ser Thr Ser Ala Lys Lys Leu Asp Lys Lys His Trp Lys Arg
         35                  40                  45
Asn Pro Asp Lys Asn Cys Phe Asn Cys Glu Lys Leu Glu Asn Asn Phe
         50                  55                  60
Asp Asp Ile Lys His Thr Thr Leu Gly Glu Arg Gly Ala Leu Arg Glu
65                  70                  75                  80
Ala Met Arg Cys Leu Lys Cys Ala Asp Ala Pro Cys Gln Lys Ser Cys
                85                  90                  95
Pro Thr Asn Leu Asp Ile Lys Ser Phe Ile Thr Ser Ile Ala Asn Lys
            100                 105                 110
```

296

```
Asn Tyr Tyr Gly Ala Ala Lys Met Ile Phe Ser Asp Asn Pro Leu Gly
        115             120             125
Leu Thr Cys Gly Met Val Cys Pro Thr Ser Asp Leu Cys Val Gly Gly
        130             135             140
Cys Asn Leu Tyr Ala Thr Glu Glu Gly Pro Ile Asn Ile Gly Gly Leu
145             150             155                     160
Gln Gln Phe Ala Thr Glu Val Cys Met Ile Tyr Thr Val Thr Ser Pro
                165             170             175
His Tyr His His His Ala Gln Ile Ser
        180             185
```

```
        <210> 802
        <211> 155
        <212> PRT
        <213> Homo sapiens


        <400> 802
Asp Tyr Arg Xaa Ile Glu Ile Thr Ile Cys Lys Asn Asp Glu Cys Val
1           5               10              15
Leu Glu Asp Asn Ser Gln Arg Thr Lys Trp Lys Val Ile Ser Pro Thr
        20              25              30
Gly Asn Glu Ala Xaa Val Pro Xaa Val Cys Phe Leu Ile Pro Pro Pro
        35              40              45
Asn Lys Asp Ala Ile Xaa Met Ala Ser Arg Val Glu Gln Ser Tyr Xaa
    50              55              60
Lys Val Met Ala Leu Trp His Gln Leu His Val Asn Thr Lys Ser Leu
65              70              75              80
Xaa Ser Trp Asn Tyr Leu Arg Lys Asp Leu Asp Leu Val Gln Thr Trp
            85              90              95
Asn Leu Glu Lys Leu Arg Ser Ser Ala Pro Gly Glu Cys His Gln Ile
        100             105             110
Met Xaa Asn Leu Gln Ala His Tyr Glu Asp Phe Xaa Gln Asp Ser Arg
        115             120             125
Asp Ser Val Leu Val Ser Val Ala Asp Arg Leu Arg Leu Glu Glu Glu
    130             135             140
Xaa Glu Ala Cys Lys Ala Arg Phe Gln His Leu
145             150             155
```

```
        <210> 803
        <211> 200
        <212> PRT
        <213> Homo sapiens


        <400> 803
Arg Gly Asn Xaa Gln Gly Lys Ala Xaa Ser Ser Glu Thr Lys Glu Ser
1           5               10              15
Thr Asp Ile Glu Lys Ala Ile Leu Glu Gln Gln Val Leu Ser Glu Glu
        20              25              30
Leu Thr Thr Lys Lys Glu Gln Val Phe Glu Ala Ile Lys Thr Ser Gln
        35              40              45
Ile Phe Leu Ala Lys His Gly His Lys Leu Ser Glu Lys Glu Lys Lys
    50              55              60
Gln Ile Ser Glu Gln Leu Asn Ala Leu Asn Lys Ala Tyr His Asp Leu
65              70              75              80
Cys Asp Gly Ser Ala Asn Gln Leu Gln Gln Leu Gln Ser Gln Leu Ala
            85              90              95
His Gln Thr Glu Gln Lys Glu Cys Arg Ala Val Ala Gly Val Ile Asp
        100             105             110
Leu Gly Thr Val Glu Ile Phe Pro Ile Phe Lys Ala Met Gln Lys Gly
        115             120             125
Leu Leu Asp Gln Asp Thr Gly Leu Val Leu Leu Glu Ser Gln Val Ile
    130             135             140
Met Ser Gly Leu Ile Ala Pro Glu Thr Gly Glu Asn Leu Ser Leu Glu
```

                            297

```
        145                    150                    155                    160
        Glu Gly Val Ala Arg Asn Leu Ile Asn Pro Gln Met Tyr Gln Gln Leu
                        165                    170                    175
        Arg Glu Leu Gln Asp Ala Leu Ala Leu Ile Ser Arg Leu Thr Glu Ser
    5                   180                    185                    190
        Arg Gly Pro Leu Ser Val Val Glu
                    195                    200


                <210> 804
   10           <211> 204
                <212> PRT
                <213> Homo sapiens


                <400> 804
   15   Ala Val Glu Gly Arg Arg Val Gln Ala Leu Glu Glu Val Leu Gly Asp
        1               5                      10                     15
        Leu Arg Ala Glu Ser Arg Glu Gln Glu Lys Ala Leu Leu Ala Leu Gln
                        20                     25                     30
        Gln Gln Cys Ala Glu Gln Ala Gln Glu His Glu Val Glu Thr Arg Ala
   20                   35                     40                     45
        Leu Gln Asp Ser Trp Leu Gln Ala Gln Ala Val Leu Lys Glu Arg Asp
                    50                     55                     60
        Gln Glu Leu Glu Ala Leu Arg Ala Glu Ser Gln Ser Ser Arg His Gln
        65                     70                     75                     80
   25   Glu Glu Ala Ala Arg Ala Arg Ala Glu Ala Leu Gln Glu Ala Leu Gly
                        85                     90                     95
        Lys Ala His Ala Ala Leu Gln Gly Lys Glu Gln His Leu Leu Glu Gln
                        100                    105                    110
        Ala Glu Leu Ser Arg Ser Leu Glu Ala Ser Thr Ala Thr Leu Gln Ala
   30               115                    120                    125
        Ser Leu Asp Ala Cys Gln Ala His Ser Arg Gln Leu Glu Glu Ala Leu
                    130                    135                    140
        Arg Ile Gln Glu Gly Glu Ile Gln Asp Gln Asp Leu Arg Tyr Gln Glu
        145                    150                    155                    160
   35   Asp Val Gln Gln Leu Gln Gln Ala Leu Ala Gln Arg Asp Glu Glu Leu
                        165                    170                    175
        Arg His Gln Xaa Gly Thr Gly Ala Ser Cys Trp Lys Lys Ser Phe Gly
                        180                    185                    190
        Pro Lys Gly Xaa Lys Lys Asn Met Ile Gln Glu Glu
   40               195                    200


                <210> 805
                <211> 187
                <212> PRT
   45           <213> Homo sapiens


                <400> 805
        Phe Phe Leu Asp His Ile Leu Leu Xaa Pro Phe Trp Ala Lys Arg Leu
        1               5                      10                     15
   50   Phe Pro Ala Ala Cys Ser Arg Ser Xaa Leu Met Ser Gln Leu Phe Ile
                        20                     25                     30
        Pro Leu Gly Lys Cys Leu Leu Gln Leu Leu His Ile Leu Leu Val Ser
                    35                     40                     45
        Glu Ile Leu Val Leu Asp Leu Thr Phe Leu Tyr Pro Gln Ser Leu Leu
   55   50                     55                     60
        Gln Leu Pro Thr Val Cys Leu Ala Gly Ile Gln Gly Gly Leu Gln Gly
        65                     70                     75                     80
        Cys Ser Ala Gly Leu Gln Thr Ala Ala Gln Phe Cys Leu Leu Glu Glu
                        85                     90                     95
   60   Met Leu Leu Phe Pro Leu Gln Gly Ser Met Ser Leu Ala Lys Gly Leu
                        100                    105                    110
        Leu Gln Ser Leu Ser Pro Gly Pro Gly Ser Leu Leu Leu Met Pro Gly
                    115                    120                    125
```

298

```
        Gly Leu Thr Phe Cys Pro Gln Ser Phe Gln Leu Leu Val Pro Phe Leu
            130                 135                 140
        Glu His Cys Leu Gly Leu Gln Pro Ala Val Leu Gln Gly Pro Gly Leu
            145                 150                 155                 160
   5    His Leu Met Leu Leu Cys Leu Leu Ser Thr Leu Leu Leu Glu Gly Gln
                        165                 170                 175
        Gln Ser Phe Leu Leu Leu Pro Arg Leu Ser Pro
                    180                 185
```

  10   <210> 806
            <211> 105
            <212> PRT
            <213> Homo sapiens

  15   <400> 806
```
        Asp Lys Lys Asn Ser Arg Trp Pro Ser Val Gly Leu Lys Leu Gln Lys
          1                 5                  10                 15
        Xaa Arg Trp Ser Cys Cys Lys Ala Gln Leu Thr Leu Glu Arg Lys Gln
                        20                 25                 30
  20    Lys Gln Asp Tyr Ile Thr Arg Ser Ala Gln Thr Ser Arg Glu Leu Ala
                    35                 40                 45
        Gly Leu His His Ser Leu Ser His Ser Leu Leu Ala Val Ala Gln Ala
                50                 55                 60
        Pro Glu Ala Thr Val Leu Glu Ala Glu Thr Arg Arg Leu Asp Glu Ser
  25    65                 70                 75                 80
        Leu Thr Gln Ser Leu Thr Ser Pro Gly Pro Val Leu Leu His Pro Ser
                        85                 90                 95
        Pro Ser Thr Thr Gln Ala Ala Ser Arg
                    100                 105
```

  30   <210> 807
            <211> 256
            <212> PRT
            <213> Homo sapiens

  35   <400> 807
```
        Phe Glu Lys Asp Ala Asp Ser Ser Glu Arg Ile Ile Ala Pro Met Arg
          1                 5                  10                 15
        Trp Gly Leu Val Pro Ser Trp Phe Lys Glu Ser Asp Pro Ser Lys Leu
  40                    20                 25                 30
        Gln Phe Asn Thr Thr Asn Cys Arg Ser Asp Thr Val Met Glu Lys Arg
                        35                 40                 45
        Ser Phe Lys Val Pro Leu Gly Lys Gly Arg Arg Cys Val Val Leu Ala
                50                 55                 60
  45    Asp Gly Phe Tyr Glu Trp Gln Arg Cys Gln Gly Thr Asn Gln Arg Gln
        65                 70                 75                 80
        Pro Tyr Phe Ile Tyr Phe Pro Gln Ile Lys Thr Glu Lys Ser Gly Ser
                        85                 90                 95
        Ile Gly Ala Ala Asp Ser Pro Glu Asn Trp Glu Lys Val Trp Asp Asn
  50                    100                105                 110
        Trp Arg Leu Leu Thr Met Ala Gly Ile Phe Asp Cys Trp Glu Pro Pro
                    115                 120                 125
        Glu Gly Gly Asp Val Leu Tyr Ser Tyr Thr Ile Ile Thr Val Asp Ser
                    130                 135                 140
  55    Cys Lys Gly Leu Ser Asp Ile His His Arg Met Pro Ala Ile Leu Asp
        145                 150                 155                 160
        Gly Glu Glu Ala Val Ser Lys Trp Leu Asp Phe Gly Glu Val Ser Thr
                        165                 170                 175
        Xaa Glu Ala Leu Lys Leu Ile His Pro Thr Glu Asn Ile Thr Phe His
  60                    180                 185                 190
        Ala Val Ser Ser Val Xaa Asn Asn Ser Arg Asn Asn Thr Ser Glu Cys
                    195                 200                 205
        Leu Ala Xaa Val Asp Leu Val Val Lys Xaa Glu Leu Lys Ala Ser Gly
```
                                    299
```
```

```
             210                    215                    220
     Asn Xaa Pro Lys Asp Val Ala Met Gly Trp Xaa Gln Ser Xaa Pro Lys
     225                    230                    235                    240
     Lys Glu Asp Ser Lys Thr Leu Gln Lys Glu Lys Val Arg Cys Xaa Pro
  5                          245                    250                    255


             <210> 808
             <211> 88
             <212> PRT
 10          <213> Homo sapiens


             <400> 808
     Lys Ser Glu Arg Ala Gln Trp Leu Ser Arg Lys Gln Leu Thr Thr Arg
 15  1                   5                    10                    15
     Ser Thr Arg Ser Gly Gln Arg Leu Pro Ser Trp Val Arg His Ala Leu
                 20                    25                    30
     Arg Glu Asp Ser Thr Ser Pro Ala Arg Lys Gly Gln Gln Ala Gln Cys
                 35                    40                    45
     Pro Tyr Gly Ala His Met Ala Gly Asn Ser Ser Arg Thr Pro Leu Pro
 20  50                    55             ·        60
     Lys Leu Ser Thr Ser Pro Thr Arg Gly Ser Tyr Ser Trp Gln Lys Arg
     65                    70                    75                    80
     Leu His Glu Pro Thr Thr Val Asn
                 85
 25
             <210> 809
             <211> 96
             <212> PRT
             <213> Homo sapiens
 30
             <400> 809
     Gly Lys Thr Pro Pro Ala Leu Pro Gly Lys Gly Ser Arg Arg Ser Ala
     1                   5                    10                    15
     Pro Met Gly Pro Thr Trp Leu Val Thr Ala Ala Gly His Leu Phe Gln
 35              20                    25                    30
     Ser Cys Pro Pro Ala Pro Leu Gly Ala Pro Thr His Gly Lys Lys Asp
                 35                    40                    45
     Tyr Met Ser Pro Gln Leu Ser Thr Asn Thr Val Pro Pro Pro Pro Lys
                 50                    55                    60
 40  Ala Asn Thr Tyr Thr Tyr Asn Val Lys Asn Leu Leu Ser Glu Gln Gln
     65                    70                    75                    80
     Cys Ser Arg Pro Trp Pro Trp Ser Leu Lys Val Leu Cys His Trp Leu
                 85                    90                    95

 45          <210> 810
             <211> 178
             <212> PRT
             <213> Homo sapiens

 50          <400> 810
     Gln Ser Asn Ser Pro Val Leu Leu Ser Arg Leu His Phe Glu Lys Asp
     1                   5                    10                    15
     Ala Asp Ser Ser Glu Arg Ile Ile Ala Pro Met Arg Trp Gly Leu Val
                 20                    25                    30
 55  Pro Ser Trp Phe Lys Glu Ser Asp Pro Ser Lys Leu Gln Phe Asn Thr
                 35                    40                    45
     Thr Asn Cys Arg Ser Asp Thr Val Met Glu Lys Arg Ser Phe Lys Val
                 50                    55                    60
     Pro Leu Gly Lys Gly Arg Arg Cys Val Val Leu Ala Asp Gly Phe Tyr
 60  65                    70                    75                    80
     Glu Trp Gln Arg Cys Gln Gly Thr Asn Gln Arg Gln Pro Tyr Phe Ile
                 85                    90                    95
     Tyr Phe Pro Gln Ile Lys Thr Glu Lys Ser Gly Ser Ile Gly Ala Ala
```

300

```
                     100                    105                    110
     Asp Ser Pro Glu Asn Trp Glu Lys Val Trp Asp Asn Trp Arg Leu Leu
             115                    120                    125
     Thr Met Ala Gly Ile Phe Asp Cys Trp Glu Pro Pro Glu Gly Gly Asp
 5           130                    135                    140
     Val Leu Tyr Ser Tyr Thr Ile Ile Thr Val Asp Ser Cys Lys Gly Leu
     145                    150                    155                    160
     Ser Asp Ile His His Arg Met Pro Ala Ile Leu Asp Gly Glu Glu Ala
                     165                    170                    175
10   Ser Phe


             <210> 811
             <211> 294
15           <212> PRT
             <213> Homo sapiens


             <400> 811
     Arg Met Cys Gly Arg Thr Ser Cys His Leu Pro Arg Asp Val Leu Thr
20   1               5                   10                     15
     Arg Ala Cys Ala Tyr Gln Asp Arg Arg Gly Gln Gln Arg Leu Pro Glu
             20                     25                     30
     Trp Arg Asp Pro Asp Lys Tyr Cys Pro Ser Tyr Asn Lys Ser Pro Gln
             35                     40                     45
25   Ser Asn Ser Pro Val Leu Leu Ser Arg Leu His Phe Glu Lys Asp Ala
             50                     55                     60
     Asp Ser Ser Glu Arg Ile Ile Ala Pro Met Arg Trp Gly Leu Val Pro
     ·65                    70                     75                     80
     Ser Trp Phe Lys Glu Ser Asp Pro Ser Lys Leu Gln Phe Asn Thr Thr
30                  85                     90                     95
     Asn Cys Arg Ser Asp Thr Val Met Glu Lys Arg Ser Phe Lys Val Pro
                     100                    105                    110
     Leu Gly Lys Gly Arg Arg Cys Val Val Leu Ala Asp Gly Phe Tyr Glu
                     115                    120                    125
35   Trp Gln Arg Cys Gln Gly Thr Asn Gln Arg Gln Pro Tyr Phe Ile Tyr
             130                    135                    140
     Phe Pro Gln Ile Lys Thr Glu Lys Ser Gly Ser Ile Gly Ala Ala Asp
     145                    150                    155                    160
     Ser Pro Glu Asn Trp Glu Lys Val Trp Asp Asn Trp Arg Leu Leu Thr
40                  165                    170                    175
     Met Ala Gly Ile Phe Asp Cys Trp Glu Pro Pro Glu Gly Gly Asp Val
                     180                    185                    190
     Leu Tyr Ser Tyr Thr Ile Ile Thr Val Asp Ser Cys Lys Gly Leu Ser
                     195                    200                    205
45   Asp Ile His His Xaa Met Pro Ala His Ile Xaa Met Glu Lys Glu Ala
             210                    215                    220
     Val Ser Lys Met Ala Trp Thr Leu Val Lys Val Phe Asn Leu Arg Lys
     225                    230                    235                    240
     Leu Leu Lys Phe Asn Pro Pro Asn Lys Arg Lys Phe Thr Phe Pro Cys
50                  245                    250                    255
     Gln Xaa Phe Xaa Gly Gly Thr Asn Leu Arg Lys Gln His Phe Pro Glu
                     260                    265                    270
     Trp Phe Gly Phe Leu Ser Thr Leu Gly Gly Xaa Lys Xaa Asn Leu Xaa
             275                    280                    285
55   Ala Lys Trp Glu Xaa Pro
             290


             <210> 812
             <211> 96
60           <212> PRT
             <213> Homo sapiens


             <400> 812
```

```
Gly Lys Thr Pro Pro Ala Leu Pro Gly Lys Gly Ser Arg Arg Ser Ala
 1           5               10              15
Pro Met Gly Pro Thr Trp Leu Val Thr Ala Ala Gly His Leu Phe Gln
          20              25              30
Ser Cys Pro Pro Ala Pro Leu Gly Ala Pro Thr His Gly Lys Lys Asp
          35              40              45
Tyr Met Ser Pro Gln Leu Ser Thr Asn Thr Xaa Pro Pro Pro Pro Lys
     50              55              60
Ala Asn Thr Tyr Thr Tyr Asn Val Lys Asn Leu Leu Ser Glu Gln Gln
65              70              75              80
Cys Ser Arg Pro Trp Pro Trp Ser Leu Lys Val Leu Cys His Trp Leu
             85              90              95
```

        <210> 813
        <211> 235
        <212> PRT
        <213> Homo sapiens

        <400> 813
```
Ala Val Ser Val Ser Cys Ile Thr Tyr Leu Arg Gly Ile Phe Pro Glu
 1           5               10              15
Cys Ala Tyr Gly Thr Arg Tyr Leu Asp Asp Leu Cys Val Lys Ile Leu
          20              25              30
Arg Glu Asp Lys Asn Cys Pro Gly Ser Thr Gln Leu Val Lys Trp Met
          35              40              45
Leu Gly Cys Tyr Asp Ala Leu Gln Lys Lys Tyr Leu Arg Met Val Val
     50              55              60
Leu Ala Val Tyr Thr Asn Pro Glu Asp Pro Gln Thr Ile Ser Glu Cys
65              70              75              80
Tyr Gln Phe Lys Phe Lys Tyr Thr Asn Asn Gly Pro Leu Met Asp Phe
             85              90              95
Ile Ser Lys Asn Gln Ser Asn Glu Ser Ser Met Leu Ser Thr Asp Thr
             100             105             110
Lys Lys Ala Ser Ile Leu Leu Ile Arg Lys Ile Tyr Ile Leu Met Gln
          115             120             125
Asn Leu Gly Pro Leu Pro Asn Asp Val Cys Leu Thr Met Lys Leu Phe
          130             135             140
Tyr Tyr Asp Glu Val Thr Pro Pro Asp Tyr Gln Pro Pro Gly Phe Lys
145             150             155             160
Asp Gly Asp Cys Glu Gly Val Ile Phe Glu Gly Glu Pro Met Tyr Leu
             165             170             175
Asn Val Gly Glu Val Ser Thr Pro Phe His Ile Phe Lys Val Lys Val
             180             185             190
Thr Thr Glu Arg Glu Arg Met Glu Asn Ile Asp Ser Thr Xaa Leu Ser
          195             200             205
Pro Lys Gln Ile Lys Thr Pro Phe Gln Lys Ile Leu Arg Asp Lys Asp
     210             215             220
Val Xaa Xaa Glu Gln Asp Xaa Tyr Ile Ser Gly
225             230             235
```

        <210> 814
        <211> 59
        <212> PRT
        <213> Homo sapiens

        <400> 814
```
Leu Asn Asn Ile Leu Phe Met Leu Gln Lys Met Pro Tyr Phe Lys Asn
 1           5               10              15
Gln Ser Phe Cys Pro Val Lys Lys Ser Ile Val Lys Val Lys His Gln
          20              25              30
Phe Leu Asn Cys Thr Leu Tyr Ile Lys Met Leu Ile His Tyr Val Lys
          35              40              45
Ile Leu Lys Asn Ile Val Leu Ile Thr Ala Gln
```
```
                    302
```

50   55

```
<210> 815
<211> 148
<212> PRT
<213> Homo sapiens


<400> 815
Leu Cys Leu Val Tyr Val Tyr Met Pro Asn Gly Ser Leu Leu Asp Arg
1             5                  10                  15
Leu Ser Cys Leu Asp Gly Thr Pro Pro Leu Ser Trp His Met Arg Cys
            20                  25                  30
Lys Ile Ala Gln Gly Ala Ala Asn Gly Ile Asn Phe Leu His Glu Asn
            35                  40                  45
His His Ile His Arg Asp Ile Lys Ser Ala Asn Ile Leu Leu Asp Glu
    50                  55                  60
Ala Phe Thr Ala Lys Ile Ser Asp Phe Gly Leu Ala Arg Ala Ser Glu
65                  70                  75                  80
Lys Phe Ala Gln Thr Val Met Thr Ser Arg Ile Val Gly Thr Thr Ala
                85                  90                  95
Tyr Met Ala Pro Glu Ala Leu Arg Gly Glu Ile Thr Pro Lys Ser Asp
                100                 105                 110
Ile Tyr Ser Phe Gly Val Val Leu Leu Glu Ile Ile Thr Gly Leu Pro
                115                 120                 125
Ala Val Asp Glu His Arg Glu Pro Gln Leu Leu Leu Asp Ile Lys Arg
                130                 135                 140
Arg Asn Xaa Arg
145


<210> 816
<211> 77
<212> PRT
<213> Homo sapiens


<400> 816
Asn Val Thr His Leu Phe Ile Tyr Leu Phe Met Met Glu Ser His Ser
1             5                  10                  15
Val Thr Gln Ala Gly Val Gln Trp His Asp Leu Ser Ser Leu Gln Pro
            20                  25                  30
Leu Pro Pro Trp Phe Gln Leu Val Ser Cys Leu Ser Leu Pro Ser Ser
            35                  40                  45
Trp Asp Tyr Arg Cys Pro Pro Pro Arg Ser Ser Asn Phe Cys Ile Phe
    50                  55                  60
Ser Lys Asp Gly Val Ser Pro Cys Trp Pro Gly Arg Ser
65                  70                  75


<210> 817
<211> 83
<212> PRT
<213> Homo sapiens


<400> 817
Ser Pro Ala Ser Ala Ser Gln Val Ala Gly Thr Thr Gly Val His His
1             5                  10                  15
His Ala Arg Leu Ile Phe Val Phe Leu Val Lys Thr Gly Phe His His
            20                  25                  30
Val Gly Gln Ala Gly Leu Glu Leu Leu Thr Ser Gly Asp Leu Pro Ala
            35                  40                  45
Ser Ala Ser Gln Ser Ala Gly Ile Tyr Arg Tyr Glu Pro Pro His Pro
    50                  55                  60
Ala Asn Val Thr His Tyr Leu Thr Val Leu Tyr Ile Arg Ser Pro Ala
65                  70                  75                  80
Gln Asn Arg
```

303

```
<210> 818
<211> 169
<212> PRT
<213> Homo sapiens


<400> 818
Lys Glu Gln Arg Lys Glu Asn Glu Pro Glu Ala Glu Lys Thr His Leu
1               5                   10                  15
Phe Ala Lys Gln Glu Lys Ala Phe Tyr Pro Lys Ser Phe Lys Ser Lys
            20                  25                  30
Lys Gln Lys Pro Ser Arg Val Leu Tyr Ser Ser Thr Glu Ser Ser Asp
            35                  40                  45
Glu Glu Ala Leu Gln Asn Lys Lys Ile Ser Thr Ser Cys Ser Val Ile
    50                  55                  60
Pro Glu Thr Ser Asn Ser Asp Met Gln Thr Lys Lys Glu Tyr Val Val
65                  70                  75                  80
Ser Gly Glu His Lys Gln Lys Gly Lys Val Lys Arg Lys Leu Lys Asn
                85                  90                  95
Gln Asn Lys Asn Lys Glu Asn Gln Glu Leu Lys Gln Glu Lys Glu Gly
            100                 105                 110
Lys Glu Asn Thr Arg Ile Thr Asn Leu Thr Val Asn Thr Gly Leu Asp
            115                 120                 125
Cys Ser Glu Lys Thr Arg Glu Glu Gly Asn Phe Arg Lys Ser Phe Ser
    130                 135                 140
Pro Lys Asp Asp Thr Ser Leu His Leu Phe His Ile Ser Thr Gly Lys
145                 150                 155                 160
Ser Pro Lys His Ser Cys Gly Leu Lys
                165


<210> 819
<211> 139
<212> PRT
<213> Homo sapiens


<400> 819
Ala Phe Leu Phe Pro Ser Xaa Tyr Ala Ser Ile Tyr Val Phe Leu Met
1               5                   10                  15
Xaa Tyr Leu Xaa Tyr Pro Phe Phe Ser Xaa Gly Asn Leu Asn Phe Gln
            20                  25                  30
Met Xaa Asp Tyr Asp Leu His Pro Leu Phe Trp His Leu Ile Phe His
            35                  40                  45
Gln Ile Leu Xaa Gly Asn Leu Ser Asp Val Xaa Phe Phe Pro Tyr Ala
    50                  55                  60
Tyr Xaa Ile Leu Xaa Leu Asn Phe Xaa Ala Xaa Ile Gln Ile Leu Xaa
65                  70                  75                  80
Tyr His Xaa Xaa Gln Xaa Gln Ala Val Met Thr Phe Gln Asn Phe Leu
                85                  90                  95
Gly Ile Asn Met Phe Xaa Tyr Val Leu Xaa Leu Gly Gly Xaa Thr Xaa
            100                 105                 110
Phe His Leu Ile Xaa Xaa Asn Val Trp Xaa Ile Tyr Xaa Xaa Lys Tyr
    115                 120                 125
Glu Ile Asn Val Met Lys Xaa His Xaa Leu Gly
    130                 135


<210> 820
<211> 168
<212> PRT
<213> Homo sapiens


<400> 820
Pro Arg Xaa Pro Thr Leu Pro Val Asn Thr Xaa Xaa Asp Cys Ser Glu
```

304

```
            1              5                  10                 15
            Lys Thr Arg Glu Glu Gly Asn Phe Arg Lys Xaa Phe Ser Pro Lys Xaa
                         20                       25             30
            Xaa Thr Ser Leu His Leu Phe His Ile Ser Xaa Gly Lys Xaa Pro Lys
    5                    35                  40                 45
            His Xaa Xaa Gly Leu Ser Glu Xaa Gln Ser Xaa Pro Leu Xaa Gln Glu
                         50                  55                 60
            His Xaa Lys Thr Cys Leu Ser Pro Gly Ser Phe Glu Met Ser Leu Gln
            65                   70                  75             -     80
    10      Pro Asp Xaa Val Xaa Xaa Asp Xaa Thr Glu Phe Glu Xaa Leu Pro Xaa
                              85                  90                 95
            Ser Ser Xaa Val Lys Xaa Cys Lys His Lys Glu Lys Ser Xaa His Gln
                         100                 105                110
            Lys Asp Phe Xaa Leu Glu Phe Gly Glu Lys Ser Asn Ala Lys Ile Lys
    15                   115                 120                125
            Asp Glu Asp His Ser Pro Xaa Phe Glu Asn Ser Asp Cys Xaa Leu Lys
                         130                 135                140
            Lys Met Asp Lys Xaa Gly Lys Xaa Leu Lys Lys His Lys Leu Lys His
            145                  150                 155                160
    20      Lys Xaa Arg Glu Lys Glu Lys His
                              165
```

```
            <210> 821
            <211> 176
    25      <212> PRT
            <213> Homo sapiens


            <400> 821
            Leu Ser Phe Val Lys Glu Ile Lys Glu Cys Arg Arg Ile Glu Asn Leu
    30      1              5                  10                 15
            Trp Lys Asn Arg Met His Glu Lys Ala Arg Lys Ala Glu Glu Met Arg
                         20                  25                 30
            Arg Gln Gln Lys Leu Lys Gln Ala Lys Leu Val Glu Gln Tyr Arg Glu
                         35                  40                 45
    35      Gln Ser Trp Met Thr Met Ala Asn Leu Glu Lys Glu Leu Gln Glu Met
                         50                  55                 60
            Glu Ala Arg Tyr Glu Lys Glu Phe Gly Asp Gly Ser Asp Glu Asn Glu
            65                   70                  75                 80
            Met Glu Glu His Glu Leu Lys Asp Glu Glu Asp Gly Lys Asp Ser Asp
    40                        85                  90                 95
            Glu Ala Glu Asp Ala Glu Leu Tyr Asp Asp Leu Tyr Cys Pro Ala Cys
                         100                 105                110
            Asp Lys Ser Phe Lys Thr Glu Xaa Ala Met Lys Asn His Glu Lys Ser
                         115                 120                125
    45      Lys Lys His Arg Glu Met Val Ala Leu Leu Lys Gln Gln Leu Glu Glu
                         130                 135                140
            Glu Glu Xaa Asn Phe Ser Xaa Pro Gln Ile Asp Glu Asn Pro Leu Asp
            145                  150                 155                160
            Asp Asn Ser Glu Glu Glu Met Glu Asp Ala Pro Lys Gln Lys Leu Ser
    50                        165                 170                175
```

```
            <210> 822
            <211> 193
    55      <212> PRT
            <213> Homo sapiens


            <400> 822
            Ile Arg Xaa Lys Ala Arg Lys Glu Lys Asn Glu Leu Val Arg Gln Leu
    60      1              5                  10                 15
            Val Ala Phe Ile Arg Lys Arg Asp Lys Arg Val Gln Ala His Arg Lys
                         20                  25                 30
            Leu Val Glu Glu Gln Asn Ala Glu Lys Ala Arg Lys Ala Glu Glu Met
                         35                  40                 45
```

305

```
Arg Arg Gln Gln Lys Leu Lys Gln Ala Lys Leu Val Glu Gln Tyr Arg
    50              55              60
Glu Gln Ser Trp Met Thr Met Ala Asn Leu Glu Lys Glu Leu Gln Glu
65              70              75              80
Met Glu Ala Arg Tyr Glu Lys Glu Phe Gly Asp Gly Ser Asp Glu Asn
            85              90              95
Glu Met Glu Glu His Glu Leu Lys Asp Glu Glu Asp Gly Lys Asp Ser
            100             105             110
Asp Glu Ala Glu Asp Ala Glu Leu Tyr Asp Asp Leu Tyr Cys Pro Ala
        115             120             125
Cys Asp Lys Ser Phe Lys Thr Glu Lys Ala Met Lys Asn His Glu Lys
    130             135             140
Ser Lys Lys His Arg Glu Met Val Ala Leu Leu Lys Gln Gln Leu Glu
145             150             155             160
Glu Glu Glu Glu Asn Phe Ser Arg Pro Gln Ile Asp Glu Asn Pro Leu
            165             170             175
Asp Asp Asn Ser Glu Glu Glu Met Glu Asp Ala Pro Lys Gln Lys Leu
            180             185             190
Ser
```

```
        <210> 823
        <211> 253
        <212> PRT
        <213> Homo sapiens

        <400> 823
Ala Val Gln Ala Ser Ser Gly Ser Pro Lys Ala Arg Thr Thr Glu Gly
1               5               10              15
Pro Val Asp Ser Met Pro Cys Leu Asp Arg Met Pro Leu Leu Ala Lys
            20              25              30
Gly Lys Gln Ala Thr Gly Glu Glu Lys Ala Ala Thr Ala Pro Gly Ala
        35              40              45
Gly Ala Lys Ala Ser Gly Glu Gly Met Ala Gly Asp Ala Ala Gly Glu
    50              55              60
Thr Glu Gly Ser Met Glu Arg Met Gly Glu Pro Ser Gln Asp Pro Lys
65              70              75              80
Gln Gly Thr Ser Gly Gly Val Asp Thr Ser Ser Glu Gln Ile Ala Thr
            85              90              95
Leu Thr Gly Phe Pro Asp Phe Arg Glu His Ile Ala Lys Ile Phe Glu
            100             105             110
Lys Pro Val Leu Gly Ala Leu Ala Thr Pro Gly Glu Lys Ala Gly Ala
        115             120             125
Gly Arg Ser Ala Val Gly Lys Asp Leu Thr Arg Pro Leu Gly Pro Glu
    130             135             140
Lys Leu Leu Asp Gly Pro Pro Gly Val Asp Val Thr Leu Leu Pro Ala
145             150             155             160
Pro Pro Ala Arg Leu Gln Val Glu Lys Lys Gln Gln Leu Ala Gly Glu
            165             170             175
Ala Glu Ile Ser His Leu Ala Leu Gln Asp Pro Ala Ser Asp Lys Leu
            180             185             190
Leu Gly Pro Ala Gly Leu Thr Trp Glu Arg Asn Leu Pro Gly Ala Gly
        195             200             205
Val Gly Lys Glu Met Ala Gly Cys Pro Thr His Thr Glu Gly Arg Xaa
    210             215             220
Xaa Gly Gln Lys Gly Leu Gly Gln Pro Gly Gln Ala Trp Lys Ala Arg
225             230             235             240
Leu Thr Tyr Ser Leu Glu Lys Asn Xaa Gln Glu Leu Leu
            245             250
```

```
        <210> 824
        <211> 242
        <212> PRT
```

```
        <213> Homo sapiens

        <400> 824
     Val Ser Leu Ala Phe Gln Ala Trp Pro Gly Cys Pro Arg Pro Phe Trp
 5   1               5               10              15
     Pro Xaa Xaa Leu Pro Ser Val Trp Val Gly Gln Pro Ala Ile Ser Phe
             20                  25                  30
     Pro Thr Pro Ala Pro Gly Lys Phe Arg Ser Gln Val Ser Pro Ala Gly
             35                  40                  45
10   Pro Arg Ser Leu Ser Glu Ala Gly Ser Cys Arg Ala Arg Trp Glu Ile
         50                  55                  60
     Ser Ala Ser Pro Ala Asn Cys Cys Phe Phe Ser Thr Trp Ser Arg Ala
     65                  70                  75                  80
     Gly Gly Ala Gly Arg Arg Val Thr Ser Thr Pro Gly Gly Pro Ser Arg
15                   85                  90                  95
     Ser Phe Ser Gly Pro Asn Gly Leu Val Arg Ser Leu Pro Thr Ala Leu
                 100                 105                 110
     Leu Pro Ala Pro Ala Phe Ser Pro Gly Val Ala Arg Ala Pro Ser Thr
                 115                 120                 125
20   Gly Phe Ser Lys Ile Leu Ala Met Cys Ser Leu Lys Ser Gly Lys Pro
                 130                 135                 140
     Val Arg Val Ala Ile Cys Ser Glu Leu Val Ser Thr Pro Pro Asp Val
     145                 150                 155                 160
     Pro Cys Phe Gly Ser Trp Glu Gly Ser Pro Ile Leu Ser Met Leu Pro
25                   165                 170                 175
     Ser Val Ser Pro Ala Ala Ser Pro Ala Met Pro Ser Pro Leu Ala Leu
                 180                 185                 190
     Ala Pro Ala Pro Gly Ala Val Ala Ala Phe Ser Ser Pro Val Ala Cys
                 195                 200                 205
30   Leu Pro Leu Ala Arg Ser Gly Ile Arg Ser Arg His Gly Met Glu Ser
             210                 215                 220
     Thr Gly Pro Ser Val Val Leu Ala Leu Gly Leu Pro Leu Leu Ala Cys
     225                 230                 235                 240
     Thr Ala
35


        <210> 825
        <211> 82
        <212> PRT
40      <213> Homo sapiens

        <400> 825
     Phe Tyr Asn Leu Lys Xaa Leu Lys Gln Gln Val Met Lys Tyr Leu Leu
     1               5               10              15
45   Tyr Tyr Tyr Thr Ser Gly Pro Ala Phe Ser Lys Lys Xaa Leu Thr Cys
                 20                  25                  30
     Leu Arg Thr Leu Lys Lys Lys Ala Leu Ile Trp Ser Phe Leu Gly Trp
             35                  40                  45
     Gly Arg Leu Phe Gln Ala Arg Gln Ile Phe Leu Leu Pro Leu Asn Trp
50       50                  55                  60
     Glu Tyr Lys Lys Tyr Ile Thr Ala Lys Ala Ala Gly Asn Cys Ile Leu
     65                  70                  75                  80
     Ser Gln

55
        <210> 826
        <211> 64
        <212> PRT
        <213> Homo sapiens
60
        <400> 826
     Pro Leu Val Leu Cys Xaa Ser Cys Xaa Pro Arg Phe His Pro Phe Gly
     1               5               10                  15
```

```
        Lys Arg Gly Xaa Cys Ala Arg Thr Gln Thr His Arg Asn Lys Leu Ser
                    20              25                      30
        Ala Ser Xaa Ala Phe Gly Cys Xaa Gly Ala Val Cys Ala His Ile Tyr
                35              40              45
  5     Met His Thr Thr Leu Val Cys Met Ser Arg Gly Asn Gln Xaa Leu Asn
            50              55                      60


            <210> 827
            <211> 157
 10         <212> PRT
            <213> Homo sapiens


            <400> 827
        Ala Trp Pro Ala Leu Ala Pro Gly Ser Pro Val Pro Ala Ala Arg Pro
 15     1               5               10                      15
        Pro Arg Ser Arg Ala Pro Phe Arg Pro Gly Arg Ser Pro Ala Gly Met
                    20              25              30
        Gln Xaa Ser Pro Xaa Gly Tyr Gly Ala Gln Asp Asp Pro Pro Ala Arg
                    35              40              45
 20     Arg Asp Cys Ala Trp Ala Pro Gly His Gly Ala Ala Ala Asp Thr Arg
                50              55              60
        Gly Leu Thr Ala Gly Pro Ala Ala Leu Ala Ala Pro Ala Xaa Pro Ala
        65              70              75              80
        Xaa Xaa Pro Ser Pro Gln Arg Xaa Pro Pro Arg Asn Xaa Glu Pro Gly
 25             85              90              95
        Arg Tyr Gly Leu Ser Pro Ala Gly Arg Gly Glu Arg Xaa Ala Xaa Tyr
                    100             105             110
        Glu Xaa Xaa Ile Pro Leu Ala His Glu Arg Leu Xaa Gly Val Gly Lys
                115             120             125
 30     Xaa Thr Xaa Ser Lys Leu Xaa Gly Xaa Xaa Xaa Thr Arg Xaa Cys Xaa
            130             135             140
        Asn Ala Val Xaa Gln Xaa Arg Cys Trp Xaa Lys Ser Val
        145             150             155


 35         <210> 828
            <211> 138
            <212> PRT
            <213> Homo sapiens


 40         <400> 828
        Pro Gly Leu Pro Leu Arg Pro Ala Pro Gln Cys Pro Pro Pro Ala Arg
        1               5               10                      15
        Arg Ala Pro Ala Leu Arg Ser Ala Gln Ala Ala Ala Gln Leu Glu Cys
                    20              25              30
 45     Lys Xaa Arg Xaa Pro Ala Thr Ala His Arg Thr Thr Arg Pro Pro Ala
                35              40              45
        Ala Thr Val His Gly Pro Arg Asp Thr Gly Pro Pro Leu Thr Arg Ala
            50              55              60
        Ala Ser Pro Pro Ala Pro Pro Pro Ser Pro Arg Pro Xaa Xaa Pro Pro
 50     65              70              75              80
        Xaa Arg Pro Ala Arg Ser Ala Xaa Pro Arg Ala Thr Xaa Ser Arg Gly
                    85              90              95
        Ala Met Ala Ser Ala Arg Pro Ala Ala Gly Asn Ala Xaa Arg Xaa Thr
                    100             105             110
 55     Ser Xaa Ala Ser Arg Trp Pro Met Asn Ala Xaa Met Gly Trp Ala Xaa
                115             120             125
        Gly Arg Xaa Ala Ser Xaa Leu Ala Xaa Xaa
            130             135


 60         <210> 829
            <211> 164
            <212> PRT
            <213> Homo sapiens
```

```
          <400> 829
     Arg Xaa Val Xaa Ala Pro Ser His Ala Phe Xaa Pro Ala Ser Xaa Leu
      1           5               10              15
 5   Xaa His Arg Val Xaa Ala Xaa Pro Gly Xaa Xaa Xaa Ala Xaa Gln Leu
              20          25              30
     Ala Xaa Arg Xaa Phe Ala His Pro Xaa Lys Ala Phe Met Gly Gln Arg
              35          40              45
     Asp Xaa Xaa Leu Val Xaa Arg Xaa Ala Phe Pro Ala Ala Gly Arg Ala
10       50          55              60
     Glu Ala Ile Ala Pro Arg Leu Xaa Val Ala Arg Gly Xaa Ala Leu Arg
     65              70          75              80
     Ala Gly Xaa Xaa Gly Gly Xaa Gly Gly Arg Gly Glu Gly Gly Gly Ala
              85          90              95
15   Gly Gly Glu Ala Ala Arg Val Ser Gly Gly Pro Val Ser Arg Gly Pro
              100         105             110
     Cys Thr Val Ala Ala Gly Gly Arg Val Val Leu Cys Ala Val Ala Xaa
              115         120             125
     Arg Arg Xaa Leu His Ser Ser Trp Ala Ala Ala Trp Ala Glu Arg Ser
20       130         135             140
     Ala Gly Ala Arg Arg Ala Gly Gly His Trp Gly Ala Gly Arg Lys
     145         150             155             160
     Gly Arg Pro Gly
```

25

```
          <210> 830
          <211> 179
          <212> PRT
          <213> Homo sapiens
```
30
```
          <400> 830
     Pro Ala Phe Ile Gly Glu Val Asn His Lys Glu Ile Lys Met Ser Lys
      1           5               10              15
     Ser Lys Asp Asp Ala Pro His Glu Leu Glu Ser Gln Phe Ile Leu Arg
35            20          25              30
     Leu Pro Pro Glu Tyr Ala Ser Thr Val Arg Arg Ala Val Gln Ser Gly
              35          40              45
     His Val Asn Leu Lys Asp Arg Leu Thr Ile Glu Leu His Pro Asp Gly
              50          55              60
40   Arg His Gly Ile Val Arg Val Asp Arg Val Pro Leu Ala Ser Lys Leu
     65              70          75              80
     Val Asp Leu Pro Cys Val Met Glu Ser Leu Lys Thr Ile Asp Lys Lys
              85          90              95
     Thr Phe Tyr Lys Thr Ala Asp Ile Cys Gln Met Leu Val Ser Thr Val
45            100         105             110
     Asp Gly Asp Leu Tyr Pro Pro Val Glu Glu Pro Val Ala Ser Thr Asp
              115         120             125
     Pro Lys Ala Ser Lys Lys Lys Asp Lys Asp Lys Glu Lys Lys Phe Ile
              130         135             140
50   Trp Asn His Gly Ile Thr Leu Pro Leu Lys Asn Val Arg Lys Lys Lys
     145         150             155             160
     Val Pro Glu Asp Ser Gln Arg Arg Asn Ile Leu Asn Leu Gln Met Leu
              165         170             175
     Lys Lys Lys
```
55

```
          <210> 831
          <211> 135
          <212> PRT
60        <213> Homo sapiens

          <400> 831
     Leu Gly Asn Arg Lys Ala Asn Gly Gly Ser Pro Gly Thr Val Phe Gly
```

```
     1                    5                    10                   15
    Pro Glu Ser Pro Ala Glu Ile Leu Ser Thr His Lys Leu Ser Arg Asn
                20                   25                   30
    Lys Asp Thr Gln Lys Ile Arg Ala Gln Arg Ala Leu Phe Ala Ser Gly
                35                   40                   45
    Thr Tyr Asn Pro Val Thr Ile Ile Ser Ser Val Ser Pro Gly Arg Ser
                50                   55                   60
    Glu Gly Lys Arg Arg Pro Gln Gly Ala Lys Arg Glu Arg Ala Glu Arg
    65                   70                   75                   80
    Leu Leu Val Val Ser Leu Ile Leu Pro Ala Ala Trp Gln Ser Asp Pro
                     85                   90                   95
    Leu Pro Ile Thr Asp Glu Arg Ala Arg Asp Gly Gln Arg Glu Ile Leu
                100                  105                  110
    Pro Arg Gly Ala Ala Arg Ile Thr Arg Pro Arg Thr Ser Pro Ala Leu
                115                  120                  125
    Arg Pro Gly Arg Leu Pro Ser
                130                  135
```

```
        <210> 832
        <211> 113
        <212> PRT
        <213> Homo sapiens


        <400> 832
    Pro Ala Phe Ile Gly Glu Val Asn His Lys Glu Ile Lys Met Ser Lys
     1                    5                    10                   15
    Ser Lys Asp Asp Ala Pro His Glu Leu Glu Ser Gln Phe Ile Leu Arg
                20                   25                   30
    Leu Pro Pro Glu Tyr Ala Ser Thr Val Arg Arg Ala Val Gln Ser Gly
                35                   40                   45
    His Val Asn Leu Lys Asp Arg Leu Thr Ile Glu Leu His Pro Asp Gly
                50                   55                   60
    Arg His Gly Ile Val Arg Val Asp Arg Val Pro Leu Ala Ser Lys Leu
    65                   70                   75                   80
    Val Asp Leu Pro Cys Val Met Glu Ser Leu Lys Thr Ile Asp Lys Lys
                     85                   90                   95
    Thr Phe Tyr Lys Thr Ala Asp Ile Cys Gln Met Leu Val Ser Thr Val
                100                  105                  110
    Asp
```

```
        <210> 833
        <211> 134
        <212> PRT
        <213> Homo sapiens


        <400> 833
    Ala His Pro Val Ser Leu Lys Ser Val Leu Arg Ala Arg Phe Ser Thr
     1                    5                    10                   15
    Phe Met Met Arg Pro Leu Xaa Val Leu Pro Cys Pro Gly Leu Leu Glu
                20                   25                   30
    Leu Ala Phe His Val Gly Asn Leu Xaa Xaa Asn Ser Ile Thr Ser Trp
                35                   40                   45
    Met Gly Pro Ser Xaa Ser Trp Gly Trp Ser Ser Glu Xaa Ile Asn Leu
    50                   55                   60
    Gly Leu Asp Xaa Xaa Ser Lys Thr Ser Ser Gly Xaa Glu Gly Xaa Ile
    65                   70                   75                   80
    Phe Leu Ser Gly Arg Xaa Gly Leu Phe Tyr Pro Thr Gly Xaa Xaa Xaa
                     85                   90                   95
    Gly Trp Lys Ser Xaa Gln Xaa Ile Cys Xaa Lys Asn Met Ala Cys Arg
                100                  105                  110
    Asp Lys Ile Leu Xaa Lys Lys Xaa Gly Leu Ile Xaa Pro Phe Val Ile
                115                  120                  125
```

Ser His Xaa Xaa Pro Xaa
    130

<210> 834
<211> 128
<212> PRT
<213> Homo sapiens

<400> 834
Leu Gly Asn Arg Lys Ala Asn Gly Gly Ser Pro Gly Thr Val Phe Gly
  1   5   10   15
Pro Glu Ser Pro Ala Glu Ile Leu Ser Thr His Lys Leu Ser Arg Asn
             20   25   30
Lys Asp Thr Gln Lys Ile Arg Ala Gln Arg Ala Leu Phe Ala Ser Gly
         35   40   45
Thr Tyr Asn Pro Val Thr Ile Ile Ser Ser Val Ser Pro Gly Arg Ser
         50   55   60
Glu Gly Lys Arg Arg Pro Gln Gly Ala Lys Arg Glu Arg Ala Glu Arg
 65   70   75   80
Leu Leu Val Val Ser Leu Ile Leu Pro Ala Ala Trp Gln Ser Asp Pro
                 85   90   95
Leu Pro Ile Thr Asp Glu Arg Ala Arg Asp Gly Gln Arg Glu Ile Leu
             100   105   110
Pro Arg Gly Ala Ala Arg Ile Thr Arg Pro Arg Thr Ser Pro Ala Leu
         115   120   125

<210> 835
<211> 78
<212> PRT
<213> Homo sapiens

<400> 835
Arg Ala Gly Glu Val Arg Gly Leu Val Met Arg Ala Ala Pro Leu Gly
  1   5   10   15
Lys Ile Ser Arg Cys Pro Ser Arg Ala Leu Ser Ser Val Ile Gly Ser
             20   25   30
Gly Ser Leu Cys Gln Ala Ala Gly Arg Ile Lys Glu Thr Thr Arg Arg
         35   40   45
Arg Ser Ala Leu Ser Arg Leu Ala Pro Cys Gly Leu Leu Phe Pro Ser
     50   55   60
Leu Arg Pro Gly Glu Thr Glu Leu Ile Ile Val Thr Gly Leu
 65   70   75

<210> 836
<211> 107
<212> PRT
<213> Homo sapiens

<400> 836
Leu Leu Leu Gln Arg Ala Glu Leu Leu Leu Phe Ser Xaa Phe Leu Leu
  1   5   10   15
Val Glu Leu Ile Gln Tyr Ser Leu Lys Ser Val Leu Glu Ser Gln Ile
             20   25   30
Ser Thr Phe Met Met Arg Pro Leu Xaa Gly Leu Pro Cys Pro Gly Leu
         35   40   45
Leu Gly Ala Trp Leu Tyr Gly Gly Asn Leu Leu Xaa Lys Xaa His Asn
     50   55   60
Xaa Leu Asp Xaa Val Leu Xaa Phe Pro Gly Ala Gly His Leu Asp Gln
 65   70   75   80
Leu Thr Trp Xaa Gly Thr Xaa Phe Ser Lys Xaa Ser Ser Xaa Gln Arg
                 85   90   95
Arg Leu Tyr Leu Leu Xaa Leu Gly Gly Xaa Gly
             100   105

```
            <210> 837
            <211> 87
            <212> PRT
            <213> Homo sapiens


            <400> 837
Leu Ile Gln Met Thr Ser Pro Arg Lys Xaa Lys Asp Xaa Ile Gln Xaa
  1           5                  10                  15
Val Met Xaa Phe Xaa Lys Gln Ile Ala Thr Ile Lys Pro Ser Ser Gln
            20                  25                  30
Glu Pro Arg Thr Gly Gln Thr Xaa Lys Arg Ser His His Glu Ser Gly
            35                  40                  45
Asn Leu Ala Leu Lys Asn Arg Phe Gln Ala Val Leu Asp Glu Leu Asn
    50                  55                  60
Gln Lys Glu Xaa Arg Glu Lys Glu Gln Leu Ser Ser Leu Gln Glu Glu
65                  70                  75                  80
Leu Glu Ser Leu Leu Glu Lys
                85


            <210> 838
            <211> 183
            <212> PRT
            <213> Homo sapiens


            <400> 838
Pro Ala Phe Ile Gly Glu Val Asn His Lys Glu Ile Lys Met Ser Lys
  1           5                  10                  15
Ser Lys Asp Asp Ala Pro His Glu Leu Glu Ser Gln Phe Ile Leu Arg
            20                  25                  30
Leu Pro Pro Glu Tyr Ala Ser Thr Val Arg Arg Ala Val Gln Ser Gly
            35                  40                  45
His Val Asn Leu Lys Asp Arg Leu Thr Ile Glu Leu His Pro Asp Gly
    50                  55                  60
Arg His Gly Ile Val Arg Val Asp Arg Val Pro Leu Ala Ser Lys Leu
65                  70                  75                  80
Val Asp Leu Pro Cys Val Met Glu Ser Leu Lys Thr Ile Asp Lys Lys
                85                  90                  95
Thr Phe Tyr Lys Thr Ala Asp Ile Cys Gln Met Leu Val Ser Thr Val
            100                 105                 110
Asp Gly Asp Leu Tyr Pro Pro Val Glu Glu Pro Val Ala Ser Thr Asp
            115                 120                 125
Pro Lys Ala Ser Lys Lys Lys Asp Lys Asp Lys Glu Lys Lys Phe Ile
    130                 135                 140
Trp Asn His Gly Ile Thr Leu Pro Leu Lys Asn Val Xaa Glu Glu Lys
145                 150                 155                 160
Gly Ser Gly Arg Gln Pro Lys Lys Lys Xaa Xaa Glu Ser Xaa Asp Val
                165                 170                 175
Glu Lys Glu Val Lys Arg Cys
                180


            <210> 839
            <211> 64
            <212> PRT
            <213> Homo sapiens


            <400> 839
Leu Leu Leu Gln Arg Ala Glu Leu Leu Leu Phe Ser Xaa Phe Leu Leu
  1           5                  10                  15
Phe Glu Leu Ile Pro Val Gln Ala Trp Lys Xaa Val Leu Glu Lys Pro
            20                  25                  30
Asp Phe Pro Leu Ser Trp Met Arg Xaa Leu Leu Ser Phe Leu Pro Cys
            35                  40                  45
```

312

```
Pro Gly Ser Phe Gly Ala Leu Pro Phe His Gly Xaa Asn Leu Ala Ser
    50                  55                  60
```

```
        <210> 840
        <211> 79
        <212> PRT
        <213> Homo sapiens


        <400> 840
Glu Ala Arg Phe Ser Thr Phe Met Asp Glu Xaa Pro Leu Val Val Phe
1                   5                   10                  15
Ala Leu Ser Trp Val Phe Trp Ser Leu Ala Leu Ser Trp Xaa Gln Ser
            20                  25                  30
Gly Phe Leu Asn Ser His Asn Pro Ala Xaa Xaa Gly Pro Phe Ile Phe
        35                  40                  45
Xaa Gly Xaa Gly His Phe Gly Phe His Leu Asn Leu Xaa Pro Gly Xaa
    50                  55                  60
Leu Ala Xaa Ser Xaa Xaa Phe Ser Ser Arg Xaa Xaa Lys Glu Gly
65                  70                  75
```

```
        <210> 841
        <211> 57
        <212> PRT
        <213> Homo sapiens


        <400> 841
Lys Gly Lys Ala Pro Lys Asp Pro Gly Gln Gly Lys Asn Asp Lys Arg
1                   5                   10                  15
Xaa Leu Ile His Glu Ser Gly Lys Ser Gly Phe Ser Arg Thr Xaa Phe
            20                  25                  30
Gln Ala Cys Thr Gly Met Ser Ser Asn Lys Arg Lys Xaa Glu Lys Arg
        35                  40                  45
Ser Asn Ser Ala Leu Cys Lys Arg Ser
    50                  55
```

```
        <210> 842
        <211> 57
        <212> PRT
        <213> Homo sapiens


        <400> 842
Thr Pro Gly Thr Gly Gln Asn Arg Gln Glu Xaa Ser His His Glu Ser
1                   5                   10                  15
Gly Asn Leu Ala Leu Lys Thr Asp Phe Gln Gly Leu Tyr Trp Asp Glu
            20                  25                  30
Leu Lys Gln Lys Glu Xaa Arg Glu Lys Glu Gln Leu Ser Ser Leu Gln
        35                  40                  45
Glu Glu Leu Glu Ser Leu Leu Glu Lys
    50                  55
```

```
        <210> 843
        <211> 50
        <212> PRT
        <213> Homo sapiens


        <400> 843
Pro Gln Gly Gln Gly Lys Thr Asp Lys Arg Xaa Leu Ile Met Lys Val
1                   5                   10                  15
Glu Ile Trp Leu Ser Arg Gln Ile Phe Arg Ala Cys Thr Gly Met Ser
            20                  25                  30
Ser Asn Lys Arg Lys Xaa Glu Lys Arg Ser Asn Ser Ala Leu Cys Lys
        35                  40                  45
Arg Ser
```

50

```
<210> 844
<211> 85
<212> PRT
<213> Homo sapiens


<400> 844
Leu Gly Arg Arg Pro Gly Arg Arg Ala Gly Glu Val Arg Gly Leu Val
1               5                   10                  15
Met Arg Ala Ala Pro Leu Gly Lys Ile Ser Arg Cys Pro Ser Arg Ala
            20                  25                  30
Leu Ser Ser Val Ile Gly Ser Gly Ser Leu Cys Gln Ala Ala Gly Arg
        35                  40                  45
Ile Lys Glu Thr Thr Arg Arg Arg Ser Ala Leu Ser Arg Leu Ala Pro
    50                  55                  60
Cys Gly Leu Leu Phe Pro Ser Leu Arg Pro Gly Glu Thr Glu Leu Ile
65                  70                  75                  80
Ile Val Thr Gly Leu
                85


<210> 845
<211> 95
<212> PRT
<213> Homo sapiens


<400> 845
Leu Ala Arg Glu Gln Glu Ser Lys Trp Arg Leu Pro Arg Asn Gly Phe
1               5                   10                  15
Arg Pro Arg Lys Pro Ser Arg Asp Thr Phe Asn Ser Gln Thr Leu Pro
            20                  25                  30
Glu Gln Arg His Ser Lys Asn Gln Gly Ser Ala Ser Ser Leu Arg Leu
        35                  40                  45
Gly Tyr Leu Gln Ser Ser Asp Asp Tyr Lys Phe Ser Phe Thr Gly Pro
    50                  55                  60
Glu Arg Arg Glu Glu Glu Ala Ala Arg Ser Gln Ala Gly Glu Ser Arg
65                  70                  75                  80
Ala Ser Pro Cys Arg Phe Leu Asn Ser Ser Cys Arg Leu Ala Glu
            85                  90                  95


<210> 846
<211> 135
<212> PRT
<213> Homo sapiens


<400> 846
Leu Gly Asn Arg Lys Ala Asn Gly Gly Ser Pro Gly Thr Val Phe Gly
1               5                   10                  15
Pro Glu Ser Pro Ala Glu Ile Leu Ser Thr His Lys Leu Ser Arg Asn
            20                  25                  30
Lys Asp Thr Gln Lys Ile Arg Ala Gln Arg Ala Leu Phe Ala Ser Gly
        35                  40                  45
Thr Tyr Asn Pro Val Thr Ile Ser Ser Val Ser Pro Gly Arg Ser
    50                  55                  60
Glu Gly Lys Arg Arg Pro Gln Gly Ala Lys Arg Glu Arg Ala Glu Arg
65                  70                  75                  80
Leu Leu Val Val Ser Leu Ile Leu Pro Ala Ala Trp Gln Ser Asp Pro
            85                  90                  95
Leu Pro Ile Thr Asp Glu Arg Ala Arg Asp Gly Gln Arg Glu Ile Leu
            100                 105                 110
Pro Arg Gly Ala Ala Arg Ile Thr Arg Pro Arg Thr Ser Pro Ala Leu
        115                 120                 125
Arg Pro Gly Arg Leu Pro Ser
```

314

130   135

```
        <210> 847
        <211> 133
        <212> PRT
        <213> Homo sapiens


        <400> 847
Leu Gly Asn Arg Lys Ala Asn Gly Gly Ser Pro Gly Thr Val Phe Gly
1               5                   10                  15
Pro Glu Ser Pro Ala Glu Ile Leu Ser Thr His Lys Leu Ser Arg Asn
            20                  25                  30
Lys Asp Thr Gln Lys Ile Arg Ala Gln Arg Ala Leu Phe Ala Ser Gly
            35                  40                  45
Thr Tyr Asn Pro Val Thr Ile Ile Ser Ser Val Ser Pro Gly Arg Ser
            50                  55                  60
Glu Gly Lys Arg Arg Pro Gln Gly Ala Lys Arg Glu Arg Ala Glu Arg
65                  70                  75                  80
Leu Leu Val Val Ser Leu Ile Leu Pro Ala Ala Trp Gln Ser Asp Pro
                85                  90                  95
Leu Pro Ile Thr Asp Glu Arg Ala Arg Asp Gly Gln Arg Glu Ile Leu
            100                 105                 110
Pro Arg Gly Ala Ala Arg Ile Thr Arg Pro Arg Thr Ser Pro Ala Leu
            115                 120                 125
Arg Pro Gly Arg Leu
            130


        <210> 848
        <211> 84
        <212> PRT
        <213> Homo sapiens


        <400> 848
Gly Arg Arg Pro Gly Arg Arg Ala Gly Glu Val Arg Gly Leu Val Met
1               5                   10                  15
Arg Ala Ala Pro Leu Gly Lys Ile Ser Arg Cys Pro Ser Arg Ala Leu
            20                  25                  30
Ser Ser Val Ile Gly Ser Gly Ser Leu Cys Gln Ala Ala Gly Arg Ile
            35                  40                  45
Lys Glu Thr Thr Arg Arg Arg Ser Ala Leu Ser Arg Leu Ala Pro Cys
            50                  55                  60
Gly Leu Leu Phe Pro Ser Leu Arg Pro Gly Glu Thr Glu Leu Ile Ile
65                  70                  75                  80
Val Thr Gly Leu


        <210> 849
        <211> 73
        <212> PRT
        <213> Homo sapiens


        <400> 849
Ala Gln Pro Met Lys Arg Ala Lys Gly Ser Xaa Lys Lys Thr Pro Xaa
1               5                   10                  15
Gly Pro Gly Ala Lys Asn Arg Pro Xaa Arg Xaa Phe Ser Phe His Glu
            20                  25                  30
Lys Xaa Lys Ile Trp Ala Xaa Gln Glu Xaa Ile Ser Gly Xaa Tyr Leu
            35                  40                  45
Asp Glu Leu Asn Gln Lys Glu Ala Arg Xaa Lys Glu Gln Leu Ser Xaa
50                  55                  60
Leu Gln Glu Glu Leu Glu Ile Pro Pro
65                  70
```

315

```
          <210> 850
          <211> 129
          <212> PRT
          <213> Homo sapiens

          <400> 850
Leu Gly Asn Arg Lys Ala Asn Gly Gly Ser Pro Gly Thr Val Phe Gly
1               5                   10                  15
Pro Glu Ser Pro Ala Glu Ile Leu Ser Thr His Lys Leu Ser Arg Asn
            20                  25                  30
Lys Asp Thr Gln Lys Ile Arg Ala Gln Arg Ala Leu Phe Ala Ser Gly
        35                  40                  45
Thr Tyr Asn Pro Val Thr Ile Ile Ser Ser Val Ser Pro Gly Arg Ser
        50                  55                  60
Glu Gly Lys Arg Arg Pro Gln Gly Ala Lys Arg Glu Arg Ala Glu Arg
65                  70                  75                  80
Leu Leu Val Val Ser Leu Ile Leu Pro Ala Ala Trp Gln Ser Asp Pro
                85                  90                  95
Leu Pro Ile Thr Asp Glu Arg Ala Arg Asp Gly Gln Arg Glu Ile Leu
            100                 105                 110
Pro Arg Gly Ala Ala Arg Ile Thr Arg Pro Arg Thr Ser Pro Ala Leu
            115                 120                 125
Arg


          <210> 851
          <211> 95
          <212> PRT
          <213> Homo sapiens

          <400> 851
Leu Ala Arg Glu Gln Glu Ser Lys Trp Arg Leu Pro Arg Asn Gly Phe
1               5                   10                  15
Arg Pro Arg Lys Pro Ser Arg Asp Thr Phe Asn Ser Gln Thr Leu Pro
            20                  25                  30
Glu Gln Arg His Ser Lys Asn Gln Gly Ser Ala Ser Ser Leu Arg Leu
        35                  40                  45
Gly Tyr Leu Gln Ser Ser Asp Asp Tyr Lys Phe Ser Phe Thr Gly Pro
        50                  55                  60
Glu Arg Arg Glu Glu Glu Ala Ala Arg Ser Gln Ala Gly Glu Ser Arg
65                  70                  75                  80
Ala Ser Pro Cys Arg Phe Leu Asn Ser Ser Cys Arg Leu Ala Glu
                85                  90                  95


          <210> 852
          <211> 80
          <212> PRT
          <213> Homo sapiens

          <400> 852
Gly Arg Arg Ala Gly Glu Val Arg Gly Leu Val Met Arg Ala Ala Pro
1               5                   10                  15
Leu Gly Lys Ile Ser Arg Cys Pro Ser Arg Ala Leu Ser Ser Val Ile
            20                  25                  30
Gly Ser Gly Ser Leu Cys Gln Ala Ala Gly Arg Ile Lys Glu Thr Thr
        35                  40                  45
Arg Arg Arg Ser Ala Leu Ser Arg Leu Ala Pro Cys Gly Leu Leu Phe
        50                  55                  60
Pro Ser Leu Arg Pro Gly Glu Thr Glu Leu Ile Ile Val Thr Gly Leu
65                  70                  75                  80


          <210> 853
          <211> 166
```

316

```
            <212> PRT
            <213> Homo sapiens


            <400> 853
     Pro Gln Gly Phe Phe Pro Xaa Xaa Ser Phe Ile Asn Ser Asn Pro Met
     1               5                   10                  15
     Pro Val Pro Thr Phe Xaa Cys Arg Xaa Arg Thr Thr Arg Lys Lys Xaa
                 20              25                  30
     Xaa Xaa Xaa Val Arg Asn Xaa Lys Xaa Xaa Gly Xaa Phe Pro Gly Thr
             35                  40                  45
     Gly Phe Xaa Pro Xaa Lys Pro Xaa Xaa Xaa Thr Phe Xaa Xaa Gln Leu
             50                  55                  60
     Ser Arg Asn Lys Asp Thr Gln Lys Ile Arg Xaa Gln Xaa Ala Phe Phe
     65                  70                  75                  80
     Arg Leu Arg Gly Leu Ser Ile Pro Val Thr Ile Ile Ser Ser Val Ser
                     85                  90                  95
     Pro Gly Arg Ser Glu Gly Lys Arg Arg Pro Gln Gly Ala Lys Arg Glu
                 100                 105                 110
     Arg Ala Glu Arg Leu Leu Val Val Ser Leu Ile Leu Pro Ala Ala Trp
                 115                 120                 125
     Gln Ser Asp Pro Leu Pro Ile Thr Asp Glu Arg Ala Arg Asp Gly Gln
                 130                 135                 140
     Arg Glu Ile Leu Pro Arg Gly Ala Ala Arg Ile Thr Arg Pro Arg Thr
     145                 150                 155                 160
     Ser Pro Ala Leu Arg Pro
                     165


            <210> 854
            <211> 91
            <212> PRT
            <213> Homo sapiens


            <400> 854
     Pro Gly Arg Arg Ala Gly Glu Val Arg Gly Leu Val Met Arg Ala Ala
     1               5                   10                  15
     Pro Leu Gly Lys Ile Ser Arg Cys Pro Ser Arg Ala Leu Ser Ser Val
                 20              25                  30
     Ile Gly Ser Gly Ser Leu Cys Gln Ala Ala Gly Arg Ile Lys Glu Thr
             35                  40                  45
     Thr Arg Arg Arg Ser Ala Leu Ser Arg Leu Ala Pro Cys Gly Leu Leu
             50                  55                  60
     Phe Pro Ser Leu Arg Pro Gly Glu Thr Glu Leu Ile Ile Val Thr Gly
     65                  70                  75                  80
     Met Glu Arg Pro Arg Arg Arg Lys Lys Ala Xaa
                     85                  90


            <210> 855
            <211> 130
            <212> PRT
            <213> Homo sapiens


            <400> 855
     Ser Xaa Arg Xaa Ile Thr Xaa Ser Phe Xaa Pro Gly Xaa Lys Xaa Trp
     1               5                   10                  15
     Glu Lys Xaa Ser Xaa Gln Gly Pro Xaa Xaa Xaa Xaa Phe Gln Met Gly
                 20              25                  30
     Xaa Ala Pro Arg Xaa Asn Glu Gly Thr Xaa Ile Pro Xaa Xaa Val Xaa
             35                  40                  45
     Gly Ile Xaa Xaa Ser Gln Asp Cys Xaa Thr Xaa Lys Arg Ala Xaa Phe
             50                  55                  60
     Gln Lys Ala Xaa Arg Thr Gly Xaa Asn Gly Pro Lys Gly Xaa Ser Phe
     65                  70                  75                  80
     Xaa Lys Gly Gly Lys Phe Xaa Xaa Ser Lys Asn Lys Phe Ser Gly Cys
```

```
                        85                    90                    95
        Xaa Gly Xaa Ala Gln Xaa Lys Gly Ser Pro Arg Lys Gly Ala Thr Gln
                        100                   105                   110
        Leu Phe Ala Arg Xaa Ala Arg Ile Thr Pro Arg Glu Val Lys Xaa Thr
5                       115                   120                   125
        Asp Ile
                130


                <210> 856
10              <211> 119
                <212> PRT
                <213> Homo sapiens


                <400> 856
15      Pro Xaa Pro Xaa Xaa Pro Gly Xaa Xaa Phe Gly Lys Asn Xaa Val Xaa
        1               5                   10        .          15
        Arg Ala Gln Xaa Xaa Xaa Tyr Ser Arg Trp Ala Xaa Pro Pro Xaa Lys
                        20                  25                    30
        Met Lys Gly Pro Xaa Phe Xaa Xaa Gly Xaa Trp Glu Phe Xaa Xaa Ala
20              35                  40                    45
        Arg Ile Ala Xaa Pro Xaa Lys Gly Gln Xaa Ser Lys Lys Pro Xaa Gly
                50                  55                    60
        Gln Xaa Lys Thr Asp Gln Arg Xaa Ser Leu Ser Xaa Lys Gly Glu Asn
        65                  70                    75                    80
25      Leu Xaa Phe Gln Arg Thr Asn Phe Gln Ala Val Xaa Xaa Glu Leu Asn
                        85                  90                    95
        Xaa Lys Glu Ala Arg Glu Lys Glu Gln Leu Ser Ser Leu Gln Glu Xaa
                        100                 105                   110
        Leu Glu Ser Leu Leu Glu Lys
30              115


                <210> 857
                <211> 79
                <212> PRT
35              <213> Homo sapiens


                <400> 857
        Arg Asp Pro Xaa Ser Xaa Xaa Gly Xaa Gly Asn Phe Xaa Lys Pro Gly
        1               5                   10                    15
40      Leu Pro Xaa His Xaa Lys Gly Lys Xaa Pro Lys Ser Pro Xaa Asp Arg
                        20                  25                    30
        Xaa Lys Arg Thr Lys Gly Xaa Leu Phe Xaa Glu Arg Gly Lys Ile Trp
                35                  40                    45
        Xaa Phe Lys Glu Gln Ile Phe Arg Leu Xaa Trp Xaa Ser Ser Thr Xaa
45              50                  55                    60
        Arg Lys Pro Glu Lys Arg Ser Asn Ser Ala Leu Cys Lys Xaa Ser
        65                  70                    75


                <210> 858
50              <211> 63
                <212> PRT
                <213> Homo sapiens


                <400> 858
55      Xaa Leu Leu Gln Xaa Ala Glu Leu Pro Leu Phe Ser Gly Phe Leu Leu
        1               5                   10                    15
        Xaa Glu Leu Xaa Pro Val Gln Pro Trp Lys Xaa Val Xaa Glu Asn Xaa
                        20                  25                    30
        Xaa Phe Pro Pro Phe Met Glu Arg Lys Thr Pro Trp Ala Val Phe Xaa
60              35                  40                    45
        Pro Gly Xaa Gly Ala Phe Trp Glu Pro Gly Pro Phe Asn Gly Gly
                50                  55                    60
```

```
<210> 859
<211> 76
<212> PRT
<213> Homo sapiens

<400> 859
Xaa Ser Gly Leu Phe Thr Ser Leu Gly Xaa Asp Xaa Ser Xaa Ser Cys
1               5                   10                  15
Lys Xaa Leu Ser Cys Pro Phe Ser Arg Ala Ser Phe Xaa Xaa Ser Ser
            20                  25                  30
Xaa Gln Tyr Ser Pro Gly Asn Xaa Xaa Leu Lys Thr Xaa Xaa Phe Pro
        35                  40                  45
Leu Ser Trp Lys Glu Lys Pro Leu Gly Arg Phe Leu Xaa Leu Ala Xaa
        50                  55                  60
Gly Leu Phe Gly Asn Leu Ala Leu Leu Met Gly Gly
65                  70                  75


<210> 860
<211> 71
<212> PRT
<213> Homo sapiens


<400> 860
Ala Pro Pro Leu Lys Gly Pro Gly Ser Gln Lys Ala Xaa Gly Pro Gly
1               5                   10                  15
Xaa Lys Thr Ala Gln Gly Val Phe Leu Ser Met Lys Gly Gly Xaa Phe
            20                  25                  30
Xaa Phe Ser Xaa Thr Xaa Phe Gln Gly Cys Thr Xaa Met Ser Xaa Xaa
            35                  40                  45
Lys Arg Lys Pro Glu Lys Arg Gly Asn Ser Ala Xaa Cys Lys Arg Xaa
        50                  55                  60
Xaa Asn Xaa Leu Leu Glu Lys
65                  70


<210> 861
<211> 138
<212> PRT
<213> Homo sapiens


<400> 861
Met Ala Gly Gly Asp Val Ala Met Leu Glu Leu Thr Gly Gln Asn Phe
1               5                   10                  15
Thr Pro Asn Leu Arg Val Trp Phe Gly Asp Val Glu Ala Glu Thr Met
            20                  25                  30
Tyr Arg Cys Gly Glu Ser Met Leu Cys Val Val Pro Asp Ile Ser Ala
            35                  40                  45
Phe Arg Glu Gly Trp Arg Trp Val Arg Gln Pro Val Gln Val Pro Val
        50                  55                  60
Thr Leu Val Arg Asn Asp Gly Ile Ile Tyr Ser Thr Ser Leu Thr Phe
65                  70                  75                  80
Thr Tyr Thr Pro Glu Pro Gly Pro Arg Pro His Cys Ser Ala Ala Gly
                85                  90                  95
Ala Ile Leu Arg Ala Asn Ser Ser Gln Val Pro Pro Asn Glu Ser Asn
            100                 105                 110
Thr Asn Ser Glu Gly Ser Tyr Thr Asn Ala Ser Thr Asn Ser Thr Ser
            115                 120                 125
Val Thr Ser Ser Thr Ala Thr Val Val Ser
        130                 135


<210> 862
<211> 82
<212> PRT
<213> Homo sapiens
```

```
        <400> 862
Leu Trp Ser Glu Met Met Glu Ser Phe Ile Pro Pro Ala Leu Pro Leu
1               5                   10                  15
Pro Thr His Gln Asn Gln Gly Arg Gly His Ile Ala Val Gln Gln Glu
            20                  25                  30
Gln Ser Phe Glu Pro Ile Gln Ala Arg Cys Pro Leu Thr Asn Gln Thr
        35                  40                  45
Gln Thr Ala Arg Glu Val Thr Gln Thr Pro Ala Gln Ile Gln Pro Val
    50                  55                  60
Ser His His Leu Gln Pro Gln Trp Tyr Pro Asn Tyr Arg Leu Phe Ala
65                  70                  75                  80
Arg Thr
```

```
        <210> 863
        <211> 84
        <212> PRT
        <213> Homo sapiens
```

```
        <400> 863
Met Ile Pro Ser Phe Arg Thr Lys Val Thr Gly Thr Trp Thr Gly Cys
1               5                   10                  15
Arg Thr His Leu Gln Pro Ser Arg Asn Ala Glu Met Ser Gly Thr Thr
            20                  25                  30
Gln Ser Ile Leu Ser Pro His Leu Tyr Ile Val Ser Ala Ser Thr Ser
        35                  40                  45
Pro Asn His Thr Arg Lys Phe Gly Val Lys Phe Cys Pro Val Ser Ser
    50                  55                  60
Ser Ile Ala Thr Ser Pro Pro Ala Ile Gln Leu Lys Ala Leu Tyr His
65                  70                  75                  80
Xaa Xaa Gln Xaa
```

```
        <210> 864
        <211> 138
        <212> PRT
        <213> Homo sapiens
```

```
        <400> 864
Met Ala Gly Gly Asp Val Ala Met Leu Glu Leu Thr Gly Gln Asn Phe
1               5                   10                  15
Thr Pro Asn Leu Arg Val Trp Phe Gly Asp Val Glu Ala Glu Thr Met
            20                  25                  30
Tyr Arg Cys Gly Glu Ser Met Leu Cys Val Val Pro Asp Ile Ser Ala
        35                  40                  45
Phe Arg Glu Gly Trp Arg Trp Val Arg Gln Pro Val Gln Val Pro Val
    50                  55                  60
Thr Leu Val Arg Asn Asp Gly Ile Ile Tyr Ser Thr Ser Leu Thr Phe
65                  70                  75                  80
Thr Tyr Thr Pro Glu Pro Gly Pro Arg Pro His Cys Ser Ala Ala Gly
                85                  90                  95
Ala Ile Leu Arg Ala Asn Ser Ser Gln Val Pro Pro Asn Glu Ser Asn
            100                 105                 110
Thr Asn Ser Glu Gly Ser Tyr Thr Asn Ala Ser Thr Asn Ser Thr Ser
            115                 120                 125
Val Thr Ser Ser Thr Ala Thr Val Val Ser
    130                 135
```

```
        <210> 865
        <211> 218
        <212> PRT
        <213> Homo sapiens
```

```
         <400> 865
    Phe Lys Gly Phe Pro Glu Lys Glu Asn Gly Ile Xaa Ala Leu Phe Ser
    1           5                   10              15
5   Lys Lys Lys Asn Ile Ser Asn Xaa Gln Ala His Ser His Val Gln Lys
            20              25              30
    Asp Pro Asn Lys Glu Met Ile Asn Asp Gly Arg Phe Leu Xaa Asn Ser
            35              40              45
    Leu Xaa Gln Ile Xaa Gln Glu Tyr Thr Phe Tyr Glu Gly Met Gly Pro
10      50              55              60
    Val Leu Ala Pro Val Thr Pro Val Pro Val Val Glu Ser Leu Gln Leu
    65          70              75              80
    Asn Gly Gly Gly Asp Val Ala Met Leu Glu Leu Thr Gly Gln Asn Phe
            85              90              95
15  Thr Pro Asn Leu Arg Val Trp Phe Gly Asp Val Glu Ala Glu Thr Met
            100             105             110
    Tyr Arg Cys Gly Glu Ser Met Leu Cys Val Val Pro Asp Ile Ser Ala
        115             120             125
    Phe Arg Glu Gly Trp Arg Trp Val Arg Gln Pro Val Gln Val Pro Val
20      130             135             140
    Thr Leu Val Arg Asn Asp Gly Ile Ile Tyr Ser Thr Ser Leu Thr Phe
    145         150             155             160
    Thr Tyr Thr Pro Glu Pro Gly Pro Arg Pro His Cys Ser Ala Ala Gly
            165             170             175
25  Ala Ile Leu Arg Ala Asn Ser Ser Gln Val Pro Pro Asn Glu Ser Asn
            180             185             190
    Thr Asn Ser Glu Gly Ser Tyr Thr Asn Ala Ser Thr Asn Ser Thr Ser
            195             200             205
    Val Thr Ser Ser Thr Ala Thr Val Val Ser
30      210             215

         <210> 866
         <211> 109
         <212> PRT
35       <213> Homo sapiens

         <400> 866
    Asn Tyr Val Gln Val Trp Xaa Lys Val Cys Xaa Cys Val Val Pro Xaa
    1           5                   10              15
40  Ile Phe Ala Phe Arg Xaa Gly Trp Xaa Trp Val Arg Gln Pro Val Gln
            20              25              30
    Val Pro Val Thr Leu Val Arg Asn Asp Gly Ile Ile Tyr Ser Thr Ser
            35              40              45
    Leu Thr Phe Thr Tyr Thr Pro Glu Pro Gly Pro Arg Pro His Cys Ser
45      50              55              60
    Ala Ala Gly Ala Ile Leu Arg Ala Asn Ser Ser Gln Xaa Pro Pro Asn
    65          70              75              80
    Glu Ser Asn Xaa Asn Ser Glu Gly Ser Tyr Xaa Asn Ala Ser Thr Asn
            85              90              95
50  Ser Thr Xaa Val Thr Ser Xaa Thr Ala Xaa Xaa Val Ser
            100             105

         <210> 867
         <211> 98
55       <212> PRT
         <213> Homo sapiens

         <400> 867
    Gly Glu Asn Gly Ala Pro Trp Ser Phe Gly Pro Xaa Val His Phe Leu
60  1           5                   10              15
    Gly Ala Leu Gly Xaa Lys Xaa Pro Phe Lys Phe Lys Trp Arg Val Gly
            20              25              30
    Thr Xaa Gln Met Leu Glu Leu Thr Gly Gln Asn Phe Thr Pro Asn Leu
```

324

```
              35                    40                    45
      Xaa Ser Val Val Trp Gly Xaa Xaa Ser Leu Lys Leu Cys Thr Gly Val
          50                    55                    60
      Xaa Lys Ser Met Xaa Leu Cys Arg Pro Xaa His Phe Cys Ile Pro Xaa
  5   65                    70                    75                    80
      Arg Leu Xaa Met Gly Pro Ala Thr Ser Pro Gly Ser Ser Asn Phe Gly
                      85                    90                    95
      Pro Lys


 10
              <210> 868
              <211> 102
              <212> PRT
              <213> Homo sapiens
 15
              <400> 868
      Phe His His Phe Gly Pro Lys Leu Leu Glu Pro Gly Leu Val Ala Gly
      1               5                    10                    15
      Pro Xaa Ser Asn Leu Xaa Gly Met Gln Lys Cys Xaa Gly Arg His Xaa
 20                   20                    25                    30
      Ser Ile Leu Xaa Ser Thr Pro Val His Ser Phe Lys Leu Xaa His Pro
                      35                    40                    45
      Gln Thr Thr Leu Xaa Lys Phe Gly Val Lys Phe Cys Pro Val Ser Ser
          50                    55                    60
 25   Ser Ile Xaa Tyr Val Pro Thr Arg His Leu Asn Leu Lys Xaa Phe Phe
      65                    70                    75                    80
      Xaa Pro Lys Ala Pro Arg Lys Trp Thr Xaa Gly Pro Lys Asp Gln Gly
                      85                    90                    95
      Ala Pro Phe Ser Pro Gln
 30                   100


              <210> 869
              <211> 115
              <212> PRT
 35           <213> Homo sapiens


              <400> 869
      Met Ile Pro Ser Phe Arg Thr Lys Val Thr Gly Thr Trp Thr Gly Cys
      1               5                    10                    15
 40   Arg Thr His Phe Gln Pro Xaa Arg Asn Ala Lys Met Ser Gly Thr Thr
                      20                    25                    30
      Gln Ser Ile Xaa Xaa Pro His Leu Tyr Ile Val Ser Ala Xaa Thr Ser
                      35                    40                    45
      Pro Asn His Thr Arg Lys Ile Xaa Ser Glu Asn Ser Val Leu Val Ser
 45       50                    55                    60
      Ser Ser Ile Ala Thr Ser Xaa Pro Ala Ile Xaa Thr Gly Arg Xaa Xaa
      65                    70                    75                    80
      Leu Xaa Gln Gly Pro Xaa Asn Glu Leu Gly Gly Lys Gly Pro Xaa Ala
                      85                    90                    95
 50   Pro Phe Pro Ser Xaa Lys Xaa Val Leu Pro Leu Gly Pro Tyr Phe Trp
                      100                   105                   110
      Gly Pro Lys
              115


 55           <210> 870
              <211> 174
              <212> PRT
              <213> Homo sapiens


 60           <400> 870
      Gly Pro Arg Gly Asn Xaa Phe Xaa Ile Glu Gly Asn Gly Ala Xaa Gly
      1               5                    10                    15
      Pro Leu Pro Pro Ser Ser Phe Xaa Gly Pro Xaa Gly Lys Xaa Xaa Leu
```

```
                    20                  25                  30
      Pro Val Xaa Met Ala Xaa Gly Asp Val Ala Met Leu Glu Leu Thr Arg
                    35                  40                  45
      Thr Glu Phe Ser Leu Xaa Ile Leu Arg Val Trp Phe Gly Asp Val Xaa
  5         50                  55                  60
      Ala Glu Thr Met Tyr Arg Cys Gly Xaa Ser Met Leu Cys Val Val Pro
      65                  70                  75                  80
      Asp Ile Phe Ala Phe Arg Xaa Gly Trp Lys Trp Val Arg Gln Pro Val
                    85                  90                  95
 10   Gln Val Pro Val Thr Leu Val Arg Asn Asp Gly Ile Ile Tyr Ser Thr
                    100                 105                 110
      Ser Leu Thr Phe Thr Tyr Thr Pro Glu Pro Gly Pro Arg Pro His Cys
                    115                 120                 125
      Ser Ala Ala Gly Ala Thr Leu Arg Ala Asn Ser Ser Gln Xaa Pro Pro
 15         130                 135                 140
      Asn Glu Ser Asn Xaa Asn Ser Glu Gly Ser Tyr Thr Asn Ala Ser Thr
      145                 150                 155                 160
      Asn Ser Thr Ser Val Thr Ser Xaa Thr Ala Xaa Val Val Ser
                    165                 170
 20
          <210> 871
          <211> 237
          <212> PRT
          <213> Homo sapiens
 25
          <400> 871
      Lys Thr Leu Tyr Ile Ser Asp Ser Asp Lys Arg Lys His Phe Met Leu
      1               5                   10                  15
      Ser Val Lys Met Phe Tyr Gly Asn Ser Asp Asp Ile Gly Val Phe Leu
 30               20                  25                  30
      Ser Lys Arg Ile Lys Val Ile Ser Lys Pro Ser Lys Lys Lys Gln Ser
                    35                  40                  45
      Leu Lys Asn Ala Asp Leu Cys Ile Ala Ser Gly Thr Lys Val Ala Leu
                    50                  55                  60
 35   Phe Asn Arg Leu Arg Ser Gln Thr Val Ser Thr Arg Tyr Leu His Val
      65                  70                  75                  80
      Glu Gly Gly Asn Phe His Ala Ser Ser Gln Gln Trp Gly Ala Phe Phe
                    85                  90                  95
      Ile His Leu Leu Asp Asp Asp Glu Ser Glu Gly Glu Glu Phe Thr Val
 40               100                 105                 110
      Arg Asp Gly Tyr Ile His Tyr Gly Gln Thr Val Lys Leu Val Cys Ser
                    115                 120                 125
      Val Thr Gly Met Ala Leu Pro Arg Leu Ile Ile Arg Lys Val Asp Lys
                    130                 135                 140
 45   Gln Thr Ala Leu Leu Asp Ala Asp Asp Pro Val Ser Gln Leu His Lys
      145                 150                 155                 160
      Cys Ala Phe Tyr Leu Lys Asp Thr Glu Arg Met Tyr Leu Cys Leu Ser
                    165                 170                 175
      Gln Glu Arg Ile Ile Gln Phe Gln Ala Thr Pro Cys Pro Lys Glu Pro
 50               180                 185                 190
      Asn Lys Glu Met Ile Asn Asp Gly Ala Xaa Trp Thr Ile Ile Ser Thr
                    195                 200                 205
      Asp Lys Ala Glu Tyr Thr Phe Tyr Xaa Gly Met Gly Pro Val Leu Ala
      210                 215                 220
 55   Pro Ile Thr Pro Val Pro Val Val Lys Lys Ala Phe Xaa
      225                 230                 235

          <210> 872
          <211> 179
 60       <212> PRT
          <213> Homo sapiens

          <400> 872
                          323
```

```
     Leu Asn Asp Gly Ala Ser Trp Pro Phe Ile Ser Xaa Asp Lys Ala Glu
     1               5                   10              15
     Tyr Thr Phe Tyr Glu Gly Met Gly Pro Val Xaa Ala Pro Val Thr Pro
                 20                  25              30
 5   Val Pro Val Val Glu Ser Leu Gln Leu Asn Gly Gly Gly Asp Val Ala
                 35                  40              45
     Met Leu Glu Leu Thr Gly Gln Asn Phe Thr Pro Asn Leu Arg Val Trp
         50                  55                  60
     Phe Gly Asp Val Glu Ala Glu Thr Met Tyr Arg Cys Gly Glu Ser Met
10   65                  70                  75                  80
     Leu Cys Val Val Pro Asp Ile Ser Ala Phe Arg Glu Gly Trp Arg Trp
                     85                  90                  95
     Val Arg Gln Pro Val Gln Val Pro Val Thr Leu Val Arg Asn Asp Gly
                 100                 105                 110
15   Ile Ile Tyr Ser Thr Ser Leu Thr Phe Thr Tyr Thr Pro Glu Pro Gly
                 115                 120                 125
     Pro Arg Pro His Cys Ser Ala Ala Gly Ala Ile Leu Arg Ala Asn Ser
         130                 135                 140
     Ser Gln Val Pro Pro Asn Glu Ser Asn Thr Asn Ser Glu Gly Ser Tyr
20   145                 150                 155                 160
     Thr Asn Ala Ser Thr Asn Ser Thr Ser Val Thr Ser Ser Thr Ala Thr
                     165                 170                 175
     Val Val Ser


25
         <210> 873
         <211> 170
         <212> PRT
         <213> Homo sapiens
30
         <400> 873
     Pro Arg Ile Gly Gln Ser Xaa His Phe Tyr Glu Gly Met Gly Pro Cys
     1               5                   10              15
     Pro Cys Pro Ser His Xaa Cys Ala Cys Gly Xaa Glu Pro Ser Val Glu
35                   20                  25              30
     Trp Arg Val Gly Thr Val Ala Met Leu Glu Leu Thr Gly Gln Asn Phe
                 35                  40                  45
     Thr Pro Asn Leu Arg Val Trp Phe Gly Asp Val Glu Ala Glu Thr Met
         50                  55                  60
40   Tyr Arg Cys Gly Glu Ser Met Leu Cys Val Val Pro Asp Ile Ser Ala
     65                  70                  75                  80
     Phe Arg Glu Gly Trp Arg Trp Val Arg Gln Pro Val Gln Val Pro Val
                     85                  90                  95
     Thr Leu Val Arg Asn Asp Gly Ile Ile Tyr Ser Thr Ser Leu Thr Phe
45                   100                 105                 110
     Thr Tyr Thr Pro Glu Pro Gly Pro Arg Pro His Cys Ser Ala Ala Gly
                 115                 120                 125
     Ala Ile Leu Arg Ala Asn Ser Ser Gln Val Pro Pro Asn Glu Ser Asn
         130                 135                 140
50   Thr Asn Ser Glu Gly Ser Tyr Thr Asn Ala Ser Thr Asn Ser Thr Ser
     145                 150                 155                 160
     Val Thr Ser Ser Thr Ala Thr Val Val Ser
                     165                 170
55
         <210> 874
         <211> 132
         <212> PRT
         <213> Homo sapiens
60
         <400> 874
     Gln Cys Leu Asn Phe Thr Xaa Gln Asn Phe Thr Pro Asn Leu Arg Val
     1               5                   10              15
     Trp Phe Gly Asp Val Glu Ala Glu Thr Met Tyr Arg Cys Gly Glu Ser
```

```
                    20                    25                      30
       Met Leu Cys Val Val Pro Asp Ile Xaa Ala Phe Arg Glu Gly Trp Arg
               35                      40                    45
       Trp Val Arg Gln Pro Val Gln Val Pro Val Thr Leu Val Arg Asn Asp
 5         50                      55                    60
       Gly Ile Ile Tyr Ser Thr Ser Leu Thr Phe Thr Tyr Thr Pro Glu Pro
       65                      70                    75                    80
       Gly Pro Arg Pro His Cys Ser Ala Ala Gly Ala Ile Leu Arg Ala Asn
                       85                      90                    95
10     Ser Ser Gln Val Pro Pro Asn Glu Ser Asn Thr Asn Ser Glu Gly Ser
                       100                     105                   110
       Tyr Thr Asn Ala Ser Thr Asn Ser Thr Ser Val Thr Ser Ser Thr Ala
               115                     120                   125
       Thr Val Val Ser
15         130


               <210> 875
               <211> 160
               <212> PRT
20             <213> Homo sapiens


               <400> 875
       Ile Gly Ser Lys Asp Cys Ser Cys Cys Thr Ala Met Trp Pro Arg Pro
       1           5                   10                    15
25     Trp Phe Trp Cys Val Gly Lys Gly Lys Ala Gly Gly Ile Asn Asp Ser
                       20                      25                    30
       Ile Ile Ser Asp Gln Ser Tyr Trp Asn Leu Asp Trp Leu Pro Asp Pro
               35                      40                    45
       Ser Pro Thr Xaa Ser Glu Cys Lys Asn Val Trp Asp Asp Thr Lys His
30         50                      55                    60
       Thr Xaa Ser Thr Pro Xaa His Lys Phe Gln Ala Xaa Thr Ser Pro Asn
       65                      70                    75                    80
       His Thr Arg Lys Phe Gly Val Lys Phe Cys Pro Val Ser Ser Lys His
                       .85                     90                    95
35     Trp Tyr Val Pro Thr Ala Ile Gln Leu Xaa Xaa Xaa Phe His Xaa Pro
                       100                     105                   110
       Xaa Xaa Asp Trp Gly Lys Asp Xaa Xaa His Ser Leu Xaa Lys Gly Tyr
               115                     120                   125
       Ser Gly Xaa Ser Gly Xaa Lys Xaa Gly Gln Xaa Xaa Pro His Leu Ser
40         130                     135                   140
       Thr Xaa Tyr Leu Gly Leu Leu Glu Ile Gly Gly Ala Xaa Asn Xaa Ile
       145                     150                   155                   160


               <210> 876
45             <211> 129
               <212> PRT
               <213> Homo sapiens


               <400> 876
50     Thr Tyr Arg Thr Glu Phe His Ser Lys Phe Thr Ser Val Val Trp Gly
       1           5                   10                    15
       Cys Xaa Ser Leu Lys Leu Met Xaa Arg Cys Gly Xaa Ser Met Leu Cys
               20                      25                    30
       Val Val Pro Asp Ile Phe Ala Phe Arg Xaa Gly Trp Arg Trp Val Arg
55         35                      40                    45
       Gln Pro Val Gln Val Pro Val Thr Leu Val Arg Asn Asp Gly Ile Ile
           50                      55                    60
       Tyr Ser Thr Ser Leu Thr Phe Thr Tyr Thr Pro Glu Pro Gly Pro Arg
       65                      70                    75                    80
60     Pro His Cys Ser Ala Ala Gly Ala Ile Leu Arg Ala Asn Ser Ser Gln
                       85                      90                    95
       Xaa Pro Pro Asn Glu Ser Asn Thr Asn Ser Glu Gly Ser Tyr Xaa Asn
                       100                     105                   110
```

```
Ala Ser Xaa Asn Ser Thr Ser Val Thr Ser Xaa Thr Ala Xaa Val Val
        115                 120             125
Ser
```

```
        <210> 877
        <211> 126
        <212> PRT
        <213> Homo sapiens

        <400> 877
Xaa Asn Xaa Gly Pro Leu Gln Phe Pro Lys Asp Pro Asn Lys Xaa Leu
1               5               10              15
Ile Asn Glu Xaa Leu Xaa Gly Xaa Ser Xaa Ala Gln Ile Xaa Gln Ser
        20              25              30
Ile Leu Xaa Ile Arg Asn Xaa Xaa Cys Pro Cys Pro Ser Xaa Xaa Trp
        35              40              45
Xaa Cys Gly Lys Xaa Xaa Ser Val Glu Trp Arg Trp Gly Arg Thr Asn
        50              55              60
Ala Leu Asn Leu Gln Asp Arg Ile Ser Leu Gln Ile Tyr Glu Cys Gly
65              70              75              80
Leu Gly Met Xaa Lys Leu Glu Thr Tyr Xaa Gln Val Trp Xaa Glu Tyr
                85              90              95
Ala Leu Cys Arg Pro Arg His Phe Cys Ile Pro Xaa Arg Leu Glu Met
        100             105             110
Gly Pro Ala Thr Ser Pro Gly Ser Ser Asn Phe Gly Pro Lys
        115             120             125
```

```
        <210> 878
        <211> 159
        <212> PRT
        <213> Homo sapiens

        <400> 878
Gly Lys Trp Ala Xaa Ser Xaa Ala Pro Val Ile Leu Val Pro Val Glu
1               5               10              15
Lys Xaa Xaa Gln Leu Asn Gly Gly Gly Asp Val Pro Met Leu Glu Leu
        20              25              30
Thr Gly Xaa Asn Phe Thr Pro Asn Leu Arg Val Trp Phe Gly Asp Val
        35              40              45
Xaa Ala Glu Thr Met Tyr Arg Cys Gly Xaa Ser Met Xaa Cys Val Val
        50              55              60
Pro Asp Ile Xaa Ala Phe Arg Xaa Gly Trp Arg Trp Val Arg Gln Pro
65              70              75              80
Val Gln Val Pro Val Thr Leu Val Arg Asn Asp Gly Ile Ile Tyr Ser
                85              90              95
Thr Ser Leu Thr Phe Thr Tyr Thr Pro Glu Pro Gly Pro Arg Pro His
        100             105             110
Cys Ser Ala Ala Gly Ala Ile Leu Arg Ala Asn Ser Ser Gln Val Pro
        115             120             125
Pro Asn Glu Ser Asn Thr Asn Ser Glu Gly Ser Tyr Xaa Asn Ala Ser
        130             135             140
Thr Asn Ser Thr Ser Val Thr Ser Xaa Thr Ala Xaa Val Val Ser
145             150             155
```

```
        <210> 879
        <211> 111
        <212> PRT
        <213> Homo sapiens

        <400> 879
Lys Leu Lys Leu Met Tyr Arg Cys Gly Xaa Ser Met Xaa Cys Val Val
1               5               10              15
```

```
        Pro Xaa Ile Xaa Ala Phe Arg Xaa Gly Trp Arg Trp Val Arg Gln Pro
                    20              25                  30
        Val Gln Val Pro Val Thr Leu Val Arg Asn Asp Gly Ile Ile Tyr Ser
                35              40                  45
  5     Xaa Ser Leu Thr Phe Thr Tyr Thr Pro Xaa Pro Gly Pro Arg Pro His
                50              55                  60
        Cys Ser Ala Ala Gly Ala Ile Leu Arg Ala Asn Ser Ser Gln Xaa Pro
        65              70                  75                  80
        Pro Asn Glu Ser Asn Thr Asn Ser Glu Gly Ser Tyr Xaa Asn Ala Ser
  10                    85                  90                  95
        Thr Asn Ser Thr Ser Val Thr Ser Xaa Thr Ala Xaa Val Val Ser
                    100                 105                 110
```

```
                <210> 880
  15            <211> 96
                <212> PRT
                <213> Homo sapiens


                <400> 880
  20    Gly Gln Ser Ile Leu Xaa Ile Arg Xaa Trp Ala Xaa Xaa Leu Pro Gln
          1           5               10                  15
        Ser Phe Leu Gly Xaa Gly Lys Xaa Pro Ser Val Glu Trp Arg Gly Asp
                    20              25                  30
        Val Xaa Met Phe Glu Leu Thr Xaa Gln Asn Phe Thr Pro Asn Leu Arg
  25            35              40                  45
        Val Trp Phe Gly Asp Val Lys Ala Glu Thr Tyr Val Gln Val Trp Xaa
                50              55                  60
        Glu Tyr Ala Xaa Cys Arg Pro Xaa His Xaa Cys Ile Pro Xaa Arg Leu
        65              70                  75                  80
  30    Glu Met Gly Pro Ala Thr Ser Pro Gly Ser Ser Asn Phe Gly Pro Lys
                    85                  90                  95
```

```
                <210> 881
                <211> 247
  35            <212> PRT
                <213> Homo sapiens


                <400> 881
        Thr Val Phe Arg Gln Met Arg Pro Val Ser Arg Val Leu Ala Pro His
  40      1           5               10                  15
        Leu Thr Arg Ala Tyr Ala Lys Asp Val Lys Phe Gly Ala Asp Ala Arg
                    20              25                  30
        Ala Leu Met Leu Gln Gly Val Asp Leu Leu Ala Asp Ala Val Ala Val
                    35              40                  45
  45    Thr Met Gly Pro Lys Gly Arg Thr Val Ile Ile Glu Gln Ser Trp Gly
                50              55                  60
        Ser Pro Lys Val Thr Lys Asp Gly Val Thr Val Ala Lys Ser Ile Asp
        65              70                  75                  80
        Leu Lys Asp Lys Tyr Lys Asn Ile Gly Ala Lys Leu Val Gln Asp Val
  50                    85                  90                  95
        Ala Asn Asn Thr Asn Glu Glu Ala Gly Asp Gly Thr Thr Thr Ala Thr
                    100                 105                 110
        Val Leu Ala Arg Ser Ile Ala Lys Glu Gly Phe Glu Lys Ile Ser Lys
                    115                 120                 125
  55    Gly Ala Asn Pro Val Glu Ile Xaa Arg Gly Val Met Leu Ala Val Asp
                    130                 135                 140
        Ala Val Ile Ala Glu Leu Lys Lys Gln Ser Lys Pro Val Thr Thr Pro
        145                 150                 155                 160
        Glu Glu Ile Ala Gln Val Ala Thr Ile Ser Ala Asn Gly Asp Lys Glu
  60                    165                 170                 175
        Ile Gly Asn Ile Ile Ser Asp Ala Met Lys Lys Val Gly Arg Lys Gly
                    180                 185                 190
        Val Ile Thr Val Lys Asp Gly Lys Thr Leu Asn Asp Glu Leu Glu Ile
```

```
              195                    200                    205
        Ile Glu Gly Met Lys Phe Asp Arg Gly Tyr Ile Ser Pro Tyr Phe Ile
              210                    215                    220
        Asn Thr Ser Lys Gly Gln Lys Cys Glu Xaa Gln Asp Ala Tyr Val Leu
              225                    230                    235          240
        Val Ser Glu Lys Xaa Asn Xaa
                          245


                <210> 882
                <211> 123
                <212> PRT
                <213> Homo sapiens


                <400> 882
        Pro Arg Ser Asn Phe Met Pro Ser Ile Ile Ser Asn Ser Ser Phe Ser
          1               5                  10                  15
        Val Phe Pro Ser Phe Thr Val Met Thr Pro Phe Leu Pro Thr Phe Phe
                      20                  25                  30
        Ile Ala Ser Glu Met Ile Leu Pro Ile Ser Leu Ser Pro Phe Ala Glu
                  35                  40                  45
        Ile Val Ala Thr Cys Ala Ile Ser Ser Gly Val Val Thr Gly Leu Asp
              50                  55                  60
        Cys Phe Leu Ser Ser Ala Ile Thr Ala Ser Thr Ala Asn Ile Thr Pro
        65                  70                  75                  80
        Leu Xaa Ile Ser Thr Gly Leu Ala Pro Leu Leu Ile Phe Ser Lys Pro
                      85                  90                  95
        Ser Leu Ala Ile Glu Arg Ala Ser Thr Val Ala Val Val Val Pro Ser
                      100                 105                 110
        Pro Ala Ser Ser Phe Val Leu Leu Ala Thr Ser
                  115                 120


                <210> 883
                <211> 96
                <212> PRT
                <213> Homo sapiens


                <400> 883
        Lys Lys Cys Arg Val Leu Lys Asp Leu Leu Lys Ser Xaa Arg Lys Ile
          1               5                  10                  15
        Met Gln Lys Phe Leu Gln Lys Val Gly Tyr Asp Ala Lys Gly Xaa Arg
                      20                  25                  30
        Phe Cys Glu Tyr Gly Glu Lys Gly Ser Phe Asp Pro Pro Lys Val Val
                  35                  40                  45
        Arg Thr Ala Leu Leu Asp Ala Ala Gly Val Ala Ser Leu Leu Thr Thr
              50                  55                  60
        Ala Xaa Val Val Val Thr Glu Ile Pro Lys Glu Glu Lys Asp Pro Gly
        65                  70                  75                  80
        Met Gly Ala Met Gly Gly Met Gly Gly Gly Met Gly Gly Gly Met Phe
                      85                  90                  95


                <210> 884
                <211> 212
                <212> PRT
                <213> Homo sapiens


                <400> 884
        Leu Ala Glu Arg Thr Pro Cys Arg Arg Pro Ala Glu Met Leu Arg Leu
          1               5                  10                  15
        Pro Thr Val Phe Arg Gln Met Arg Pro Val Ser Arg Val Leu Ala Pro
                      20                  25                  30
        His Leu Thr Arg Ala Tyr Ala Lys Asp Val Lys Phe Gly Ala Asp Ala
                  35                  40                  45
        Arg Ala Leu Met Leu Gln Gly Val Asp Leu Leu Ala Asp Ala Val Ala
                          328
```

```
          50                    55                      60
      Val Thr Met Gly Pro Lys Gly Arg Thr Val Ile Ile Glu Gln Ser Trp
      65                    70                  75                  80
      Gly Ser Pro Lys Val Thr Lys Asp Gly Val Thr Val Ala Lys Ser Ile
                        85                  90                  95
      Asp Leu Lys Asp Lys Tyr Lys Asn Ile Gly Ala Lys Leu Val Gln Asp
                    100                 105                 110
      Val Ala Asn Asn Thr Asn Glu Glu Ala Gly Asp Gly Thr Thr Thr Ala
                    115                 120                 125
      Thr Val Leu Ala Arg Ser Ile Ala Lys Glu Gly Phe Glu Lys Ile Ser
                    130                 135                 140
      Lys Gly Ala Asn Pro Val Glu Ile Arg Arg Gly Val Met Leu Ala Val
      145                 150                 155                 160
      Asp Ala Val Ile Ala Glu Leu Lys Lys Gln Ser Lys Pro Val Thr Thr
                    165                 170                 175
      Pro Glu Glu Ile Ala Gln Val Ala Thr Ile Ser Ala Asn Gly Asp Lys
                    180                 185                 190
      Glu Ile Gly Asn Ile Ile Ser Asp Ala Met Lys Lys Val Gly Arg Xaa
                    195                 200                 205
      Gly Val Ile Gln
                    210
```

```
          <210> 885
          <211> 123
          <212> PRT
          <213> Homo sapiens


          <400> 885
      Gly Ser Lys Phe Asn Ala Phe Lys Asn Phe Leu Ile His Pro Phe Arg
      1                 5                   10                  15
      Val Xaa Pro Ser Phe Tyr Trp Met Thr Xaa Phe Leu Pro Thr Phe Phe
                    20                  25                  30
      Ile Ala Ser Glu Met Ile Leu Pro Ile Ser Leu Ser Pro Phe Ala Glu
                    35                  40                  45
      Ile Val Ala Thr Cys Ala Ile Ser Ser Gly Val Val Thr Gly Leu Asp
                    50                  55                  60
      Cys Phe Leu Ser Ser Ala Ile Thr Ala Ser Thr Ala Asn Ile Thr Pro
      65                  70                  75                  80
      Leu Leu Ile Ser Thr Gly Leu Ala Pro Leu Leu Ile Phe Ser Lys Pro
                    85                  90                  95
      Ser Leu Ala Ile Glu Arg Ala Ser Thr Val Ala Val Val Val Pro Ser
                    100                 105                 110
      Pro Ala Ser Ser Phe Val Leu Leu Ala Thr Ser
                    115                 120
```

```
          <210> 886
          <211> 107
          <212> PRT
          <213> Homo sapiens


          <400> 886
      Thr Val Thr Gly Ser Pro Arg Gln Cys Ser Ser Pro Ile Thr Ser Glu
      1                 5                   10                  15
      Lys Ser Val Gly Glu Asn Glu Glu Lys Gly Trp Leu Lys Ile Thr Ile
                    20                  25                  30
      Thr Ile Ser Tyr Trp Phe Gln Leu Thr Lys Tyr Ile Met Val Tyr Cys
                    35                  40                  45
      Cys His Cys Pro Cys Leu Gln Ile Ile Tyr Phe Val Phe Leu Asn Lys
                    50                  55                  60
      Lys His Leu Tyr Ile Pro Asp Thr Gly Tyr Lys Ser His Val Pro Val
      65                  70                  75                  80
      Tyr Cys Phe Gln Leu Lys Ser Leu Arg His Phe Tyr Tyr Tyr Ser Val
                    85                  90                  95
```

```
        Lys Ile Arg Ile Leu Val Leu Ala Thr Thr Arg
                    100                 105


            <210> 887
            <211> 107
            <212> PRT
            <213> Homo sapiens


            <400> 887
        Thr Val Thr Gly Ser Pro Arg Gln Cys Ser Ser Pro Ile Thr Ser Glu
         1               5                  10                  15
        Lys Ser Val Gly Glu Asn Glu Glu Lys Gly Trp Leu Lys Ile Thr Ile
                    20                  25                  30
        Thr Ile Ser Tyr Trp Phe Gln Leu Thr Lys Tyr Ile Met Val Tyr Cys
                    35                  40                  45
        Cys His Cys Pro Cys Leu Gln Ile Ile Tyr Phe Val Phe Leu Asn Lys
                50                  55                  60
        Lys His Leu Tyr Ile Pro Asp Thr Gly Tyr Lys Ser His Val Pro Val
        65                  70                  75                  80
        Tyr Cys Phe Gln Leu Lys Ser Leu Arg His Phe Tyr Tyr Tyr Ser Val
                        85                  90                  95
        Lys Ile Arg Ile Leu Val Leu Ala Xaa Thr Arg
                    100                 105


            <210> 888
            <211> 88
            <212> PRT
            <213> Homo sapiens


            <400> 888
        Asn Met Pro Pro Pro Ile Pro Pro Ser Ile Pro Pro Ile Ala Pro Ile
         1               5                  10                  15
        Pro Gly Ser Phe Ser Ser Leu Gly Ile Ser Val Thr Thr Thr Ser Ala
                    20                  25                  30
        Val Val Asn Lys Arg Gly Pro Thr Gln Gln His Pro Ile Lys Ala Val
                    35                  40                  45
        Leu Thr Thr Phe Gly Trp Gly Asn Asp Ser Phe Phe Xaa Pro Tyr Ser
                50                  55                  60
        Pro Lys Ile Xaa Pro Ala Xaa Ser Ile Ile Thr Xaa Leu Xaa Gly Gly
        65                  70                  75                  80
        Lys Leu Cys Ile Asn Phe Leu Asn
                        85


            <210> 889
            <211> 107
            <212> PRT
            <213> Homo sapiens


            <400> 889
        Thr Val Thr Gly Ser Pro Arg Gln Cys Ser Ser Pro Ile Thr Ser Glu
         1               5                  10                  15
        Lys Ser Val Gly Glu Asn Glu Glu Lys Gly Trp Leu Lys Ile Thr Ile
                    20                  25                  30
        Thr Ile Ser Tyr Trp Phe Gln Leu Thr Lys Tyr Ile Met Val Tyr Cys
                    35                  40                  45
        Cys His Cys Pro Cys Leu Gln Ile Ile Tyr Phe Val Phe Leu Asn Lys
                50                  55                  60
        Lys His Leu Tyr Ile Pro Asp Thr Gly Tyr Lys Ser His Val Pro Val
        65                  70                  75                  80
        Tyr Cys Phe Gln Leu Lys Ser Leu Arg His Phe Tyr Tyr Tyr Ser Val
                        85                  90                  95
        Lys Ile Arg Ile Leu Val Leu Ala Thr Thr Arg
                    100                 105
```

```
        <210> 890
        <211> 68
        <212> PRT
        <213> Homo sapiens


        <400> 890
Ser Thr Ser Leu Gly Val Arg Thr Cys His Leu Pro Tyr His Leu Pro
1               5                   10                  15
Phe His Pro Leu His Pro Phe Gln Gly Pro Phe Ser Ser Phe Xaa Asn
            20                  25                  30
Phe Trp Gly Leu Gln Leu Leu Leu Val Val Asn Arg Glu Gly Pro His
        35                  40                  45
Gln Ala Ala Phe Pro Ile Lys Pro Val Xaa His Gln Pro Phe Gly Trp
    50                  55                  60
Gly Gln Arg Ile
65


        <210> 891
        <211> 107
        <212> PRT
        <213> Homo sapiens


        <400> 891
Thr Val Thr Gly Ser Pro Arg Gln Cys Ser Ser Pro Ile Thr Ser Glu
1               5                   10                  15
Lys Ser Val Gly Glu Asn Glu Glu Lys Gly Trp Leu Lys Ile Thr Ile
            20                  25                  30
Thr Ile Ser Tyr Trp Phe Gln Leu Thr Lys Tyr Ile Met Val Tyr Cys
        35                  40                  45
Cys His Cys Pro Cys Leu Gln Ile Ile Tyr Phe Val Phe Leu Asn Lys
    50                  55                  60
Lys His Leu Tyr Ile Pro Asp Thr Gly Tyr Lys Ser His Val Pro Val
65                  70                  75                  80
Tyr Cys Phe Gln Leu Lys Ser Leu Arg His Phe Tyr Tyr Tyr Ser Val
                85                  90                  95
Lys Ile Arg Ile Leu Val Leu Ala Thr Thr Arg
            100                 105


        <210> 892
        <211> 66
        <212> PRT
        <213> Homo sapiens


        <400> 892
Asp Phe Gly Glu Tyr Gly Glu Lys Gly Ile Ile Asp Xaa Thr Lys Gly
1               5                   10                  15
Cys Glu Asn Cys Phe Tyr Trp Met Leu Leu Gly Val Xaa Ser Leu Leu
            20                  25                  30
Thr Thr Ala Glu Val Val Val Thr Glu Ile Pro Lys Glu Glu Lys Asp
        35                  40                  45
Pro Gly Met Gly Ala Met Gly Gly Met Gly Gly Gly Met Gly Gly Gly
    50                  55                  60
Met Phe
65


        <210> 893
        <211> 217
        <212> PRT
        <213> Homo sapiens


        <400> 893
Met Ala Met Ala Tyr Leu Ala Trp Arg Leu Ala Arg Arg Ser Cys Pro
```

```
      1                 5                    10                   15
     Ser Ser Leu Gln Val Thr Ser Phe Pro Val Val Gln Leu His Met Asn
                 20                   25                   30
     Arg Thr Ala Met Arg Ala Ser Gln Lys Asp Phe Glu Asn Ser Met Asn
                 35                   40                   45
     Gln Val Lys Leu Leu Lys Lys Asp Pro Gly Asn Glu Val Lys Leu Lys
                 50                   55                   60
     Leu Tyr Ala Leu Tyr Lys Gln Ala Thr Glu Gly Pro Cys Asn Met Pro
     65                   70                   75                   80
     Lys Pro Gly Val Phe Asp Leu Ile Asn Lys Ala Lys Trp Asp Ala Trp
                      85                   90                   95
     Asn Ala Leu Gly Ser Leu Pro Lys Glu Ala Ala Arg Gln Asn Tyr Val
                 100                  105                  110
     Asp Leu Val Ser Ser Leu Ser Pro Ser Leu Glu Ser Ser Ser Gln Val
                 115                  120                  125
     Glu Pro Gly Thr Asp Arg Lys Ser Thr Gly Phe Glu Thr Leu Val Val
                 130                  135                  140
     Thr Ser Glu Asp Gly Ile Thr Lys Ile Met Phe Asn Arg Pro Lys Lys
     145                  150      .          155                  160
     Lys Asn Ala Ile Asn Thr Glu Met Tyr His Glu Ile Met Arg Ala Leu
                 165                  170                  175
     Lys Ala Ala Ser Lys Asp Asp Ser Ile Ile Thr Val Leu Thr Gly Asn
                 180                  185                  190
     Gly Asp Tyr Tyr Ser Ser Gly Asn Asp Leu Thr Asn Phe Thr Asp Ile
                 195                  200                  205
     Pro Pro Gly Gly Val Glu Glu Lys Ala
     210                  215
```

```
        <210> 894
        <211> 156
        <212> PRT
        <213> Homo sapiens

        <400> 894
     Leu Gln Gly Gly Asn Gly Pro Ala Val Gly Ile Ser Val Thr Leu Leu
     1                 5                    10                   15
     Gly Leu Phe Asp Ala Val Tyr Ala Ser Asp Arg Ala Thr Phe His Thr
                 20                   25                   30
     Pro Phe Ser His Leu Gly Gln Ser Pro Glu Gly Cys Ser Ser Tyr Thr
                 35                   40                   45
     Phe Pro Lys Ile Met Ser Pro Ala Lys Ala Thr Glu Met Leu Ile Phe
                 50                   55                   60
     Gly Lys Lys Leu Thr Ala Gly Glu Ala Cys Ala Gln Gly Leu Val Thr
     65                   70                   75                   80
     Glu Val Phe Pro Asp Ser Thr Phe Gln Lys Glu Val Trp Thr Arg Leu
                      85                   90                   95
     Lys Ala Phe Ala Lys Leu Pro Pro Asn Ala Leu Arg Ile Ser Lys Glu
                 100                  105                  110
     Val Ile Arg Lys Arg Glu Arg Glu Lys Leu His Ala Val Asn Ala Glu
                 115                  120                  125
     Glu Cys Asn Val Leu Gln Gly Arg Trp Leu Ser Asp Glu Cys Thr Asn
                 130                  135                  140
     Ala Val Val Asn Phe Leu Ser Arg Lys Ser Lys Leu
     145                  150                  155
```

```
        <210> 895
        <211> 195
        <212> PRT
        <213> Homo sapiens

        <400> 895
     Val Leu Gly Leu Glu Thr Gly Ala Ala Phe Val Ser Glu Val Thr Ser
     1                 5                    10                   15
```

```
          Phe Pro Val Val Gln Leu His Met Asn Arg Thr Ala Met Arg Ala Ser
                      20                  25                  30
          Gln Lys Asp Phe Glu Asn Ser Met Asn Gln Val Lys Leu Leu Lys Lys
                      35                  40                  45
   5      Asp Pro Gly Asn Glu Val Lys Leu Lys Leu Tyr Ala Leu Tyr Lys Gln
                      50                  55                  60
          Ala Thr Glu Gly Pro Cys Asn Met Pro Lys Pro Gly Val Phe Asp Leu
          65                  70                  75                  80
          Ile Asn Lys Ala Lys Trp Asp Ala Trp Asn Ala Leu Gly Ser Leu Pro
   10                         85                  90                  95
          Lys Glu Ala Ala Arg Gln Asn Tyr Val Asp Leu Val Ser Ser Leu Ser
                      100                 105                 110
          Pro Ser Leu Glu Ser Ser Ser Gln Val Glu Pro Gly Thr Asp Arg Lys
                      115                 120                 125
   15     Ser Thr Gly Phe Glu Thr Leu Val Val Thr Ser Glu Asp Gly Ile Thr
                      130                 135                 140
          Lys Ile Met Phe Asn Arg Pro Lys Lys Lys Asn Ala Ile Asn Thr Glu
          145                 150                 155                 160
          Met Tyr His Glu Ile Met Arg Ala Leu Lys Ser Xaa Xaa Gln Xaa Met
   20                         165                 170                 175
          Thr Gln Ser Ser Leu Val Leu Thr Arg Lys Trp Xaa Thr Ile Thr Ser
                      180                 185                 190
          Lys Trp Glu
                      195
   25
                  <210> 896
                  <211> 176
                  <212> PRT
                  <213> Homo sapiens
   30
                  <400> 896
          Asn Asn Xaa Val Leu Leu Arg Xaa Phe Val Xaa Cys Phe Ile Asp Phe
          1                   5                   10                  15
          Pro Lys Pro Leu Ile Ala Val Val Asn Gly Pro Ala Val Gly Ile Xaa
   35                         20                  25                  30
          Val Thr Leu Leu Gly Leu Phe Asp Xaa Val Tyr Ala Ser Asp Arg Ala
                      35                  40                  45
          Thr Phe His Thr Pro Phe Ser His Leu Gly Gln Ser Pro Glu Gly Cys
                      50                  55                  60
   40     Ser Ser Tyr Thr Phe Pro Lys Ile Met Ser Pro Ala Lys Ala Thr Glu
          65                  70                  75                  80
          Met Leu Ile Phe Gly Lys Lys Leu Thr Ala Gly Glu Ala Cys Ala Gln
                      85                  90                  95
          Gly Leu Val Thr Glu Val Phe Pro Asp Ser Thr Phe Gln Lys Glu Val
   45                         100                 105                 110
          Trp Thr Arg Leu Lys Ala Phe Ala Lys Leu Pro Pro Asn Ala Leu Arg
                      115                 120                 125
          Ile Ser Lys Glu Val Ile Arg Lys Arg Glu Arg Glu Lys Leu His Ala
                      130                 135                 140
   50     Val Asn Ala Glu Glu Cys Asn Val Leu Gln Gly Arg Trp Leu Ser Asp
          145                 150                 155                 160
          Glu Cys Thr Asn Ala Val Val Asn Phe Leu Ser Arg Lys Ser Lys Leu
                      165                 170                 175
   55             <210> 897
                  <211> 217
                  <212> PRT
                  <213> Homo sapiens
   60             <400> 897
          Met Ala Met Ala Tyr Leu Ala Trp Arg Leu Ala Arg Arg Ser Cys Pro
          1                   5                   10                  15
          Ser Ser Leu Gln Val Thr Ser Phe Pro Val Val Gln Leu His Met Asn
```

333

```
                    20                      25                      30
     Arg Thr Ala Met Arg Ala Ser Gln Lys Asp Phe Glu Asn Ser Met Asn
              35                      40                      45
     Gln Val Lys Leu Leu Lys Lys Asp Pro Gly Asn Glu Val Lys Leu Lys
 5            50                      55                      60
     Leu Tyr Ala Leu Tyr Lys Gln Ala Thr Glu Gly Pro Cys Asn Met Pro
     65                      70                      75                      80
     Lys Pro Gly Val Phe Asp Leu Ile Asn Lys Ala Lys Trp Asp Ala Trp
                    85                      90                      95
10   Asn Ala Leu Gly Ser Leu Pro Lys Glu Ala Ala Arg Gln Asn Tyr Val
                    100                     105                     110
     Asp Leu Val Ser Ser Leu Ser Pro Ser Leu Glu Ser Ser Ser Gln Val
              115                     120                     125
     Glu Pro Gly Thr Asp Arg Lys Ser Thr Gly Phe Glu Thr Leu Val Val
15            130                     135                     140
     Thr Ser Glu Asp Gly Ile Thr Lys Ile Met Phe Asn Arg Pro Lys Lys
     145                     150                     155                     160
     Lys Asn Ala Ile Asn Thr Glu Met Tyr His Glu Ile Met Arg Ala Leu
                    165                     170                     175
20   Lys Ala Ala Ser Lys Asp Asp Ser Ile Ile Thr Val Leu Thr Gly Asn
                    180                     185                     190
     Gly Asp Tyr Tyr Ser Ser Gly Asn Asp Leu Thr Asn Phe Thr Asp Ile
              195                     200                     205
     Xaa Pro Gly Gly Val Xaa Glu Lys Ala
25   210                     215
```

```
          <210> 898
          <211> 158
          <212> PRT
30        <213> Homo sapiens


          <400> 898
     Ala Ser Asp Xaa Ser Gly Asn Gly Pro Ala Val Gly Ile Xaa Val Thr
     1               5                       10                      15
35   Leu Leu Gly Leu Phe Asp Xaa Val Tyr Ala Ser Asp Arg Ala Thr Phe
                    20                      25                      30
     His Thr Pro Phe Ser His Xaa Gly Gln Ser Pro Glu Gly Cys Ser Ser
              35                      40                      45
     Tyr Thr Phe Pro Lys Ile Met Ser Pro Ala Lys Ala Thr Glu Met Leu
40            50                      55                      60
     Ile Phe Gly Lys Lys Leu Thr Ala Gly Glu Ala Cys Ala Gln Gly Leu
     65                      70                      75                      80
     Val Thr Glu Val Phe Pro Asp Ser Thr Phe Gln Lys Glu Val Trp Thr
                    85                      90                      95
45   Arg Leu Lys Ala Phe Ala Lys Leu Pro Pro Asn Ala Leu Arg Ile Ser
                    100                     105                     110
     Lys Glu Val Ile Arg Lys Arg Glu Arg Glu Lys Leu His Ala Val Asn
              115                     120                     125
     Ala Glu Glu Cys Asn Val Leu Gln Gly Arg Trp Leu Ser Asp Glu Cys
50   130                     135                     140
     Thr Asn Ala Val Val Asn Phe Leu Ser Arg Lys Ser Lys Leu
     145                     150                     155
```

```
          <210> 899
55        <211> 156
          <212> PRT
          <213> Homo sapiens


          <400> 899
60   Leu Gln Trp Ser Met Val Gln Leu Trp Ala Ser Pro Ser Pro Ser Leu
     1               5                       10                      15
     Gly Leu Phe Asp Ala Val Tyr Ala Ser Asp Arg Ala Thr Phe His Thr
                    20                      25                      30
```

```
          Pro Phe Ser His Leu Gly Gln Ser Pro Glu Gly Cys Ser Ser Tyr Thr
                  35              40                  45
          Phe Pro Lys Ile Met Ser Pro Ala Lys Ala Thr Glu Met Leu Ile Phe
                  50              55                  60
     5    Gly Lys Lys Leu Thr Ala Gly Glu Ala Cys Ala Gln Gly Leu Val Thr
          65              70                  75                  80
          Glu Val Phe Pro Asp Ser Thr Phe Gln Lys Glu Val Trp Thr Arg Leu
                      85                  90                  95
          Lys Ala Phe Ala Lys Leu Pro Pro Asn Ala Leu Arg Ile Ser Lys Glu
     10             100             105                 110
          Val Ile Arg Lys Arg Glu Arg Glu Lys Leu His Ala Val Asn Ala Glu
                  115             120                 125
          Glu Cys Asn Val Leu Gln Gly Arg Trp Leu Ser Asp Glu Cys Thr Asn
                  130             135                 140
     15   Ala Val Val Asn Phe Leu Ser Arg Lys Ser Lys Leu
          145             150                 155

                <210> 900
                <211> 108
     20         <212> PRT
                <213> Homo sapiens


                <400> 900
          Leu Leu Lys Asn His Thr Asp Lys Gln Leu Ser Asn Lys Thr Gly Leu
     25   1               5                   10                  15
          Val Gly Phe Leu Ala Cys Leu Thr Asn Met Thr Asp Phe Leu Ser Gln
                  20                  25                  30
          Ala Leu Leu Xaa Lys Thr Ser Cys Gly Asn Gln Ala Arg Asp Lys Asn
                  35                  40                  45
     30   Ser Ser Leu Met Gln Leu Gly Glu Arg Glu Arg Leu Glu Thr Ser Leu
                  50                  55                  60
          Ala Ser Asn Ser Thr His Ser His Leu Cys Val Ser Ala Leu Leu Gln
          65                  70                  75                  80
          Ala Gln Tyr Ala Xaa Cys Arg Asp Gly Gln Met Phe Arg Val Gly Ser
     35                   85                  90                  95
          Gly Thr Phe Gln Pro Ala Lys Ser Ala Glu Val Ile
                      100                 105


                <210> 901
     40         <211> 77
                <212> PRT
                <213> Homo sapiens


                <400> 901
     45   Phe Tyr Asn Ala Leu Tyr Leu Ile Lys Glu Phe Ala Phe Phe Val Tyr
          1               5                   10                  15
          Thr Gly Met Leu Tyr Ser Leu Cys Ile Leu Gln Gly Tyr Lys Met Ser
                  20                  25                  30
          Leu Ile Leu Asn Ile Thr Pro Lys Val Ile Ser Glu Lys Lys Gly Phe
     50             35                  40                  45
          Leu Lys Leu Asn Leu Thr Phe Lys Lys Ser Tyr Gly Gln Thr Thr Phe
                  50                  55                  60
          Lys Gln Asn Trp Ile Ser Arg Ile Ser Cys Leu Leu Asn
          65                  70                  75
     55
                <210> 902
                <211> 221
                <212> PRT
                <213> Homo sapiens
     60
                <400> 902
          Gln Asn Asp Asp Ala Glu Val Ser Leu Met Glu Val Arg Phe Tyr Val
          1               5                   10                  15
```

```
      Pro Pro Thr Gln Glu Asp Gly Val Asp Pro Val Glu Ala Phe Ala Gln
                  20              25              30
      Asn Val Leu Ser Lys Ala Asp Val Ile Gln Ala Thr Gly Asp Ala Ile
                  35              40              45
 5    Cys Ile Phe Arg Glu Leu Gln Cys Leu Thr Pro Arg Gly Arg Tyr Asp
                  50              55              60
      Ile Arg Ile Tyr Pro Thr Phe Leu His Leu His Gly Lys Thr Phe Asp
      65              70              75              80
      Tyr Lys Ile Pro Tyr Thr Thr Val Leu Arg Leu Phe Leu Leu Pro His
 10                   85              90              95
      Lys Asp Gln Arg Gln Met Phe Phe Val Ile Ser Leu Asp Pro Pro Ile
                  100             105             110
      Lys Gln Gly Gln Thr Arg Tyr His Phe Leu Ile Leu Leu Phe Ser Lys
                  115             120             125
 15   Asp Glu Asp Ile Ser Leu Thr Leu Asn Met Asn Glu Glu Glu Val Glu
                  130             135             140
      Lys Arg Phe Glu Gly Arg Leu Thr Lys Asn Met Ser Gly Ser Leu Tyr
      145             150             155             160
      Glu Met Val Ser Arg Val Met Lys Ala Leu Val Asn Arg Lys Ile Thr
 20               165             170             175
      Val Pro Gly Asn Phe Gln Gly His Ser Gly Ala Gln Cys Ile Thr Cys
                  180             185             190
      Ser Tyr Lys Ala Lys Leu Xaa Thr Ala Leu Pro Ala Gly Ala Gly Leu
                  195             200             205
 25   His Leu Arg Xaa Gln Ala Thr Cys Ala His Xaa Leu Arg
                  210             215             220


            <210> 903
            <211> 170
 30         <212> PRT
            <213> Homo sapiens


            <400> 903
      Gly Arg Glu Ser Xaa Met Arg Ile Trp Ile Leu His Cys Pro Ala Ser
 35   1               5               10              15
      His Pro Xaa Xaa Pro Gln Ile Ile Asn Ser His Pro Trp Glu Ala Ala
                  20              25              30
      Lys Leu Xaa Arg Leu Pro Thr Ala Leu Gly Thr Tyr Xaa Pro Thr Gly
                  35              40              45
 40   Xaa His Val Xaa Met Ala Xaa Asn Pro Gly Thr Ala Phe His Glu Xaa
                  50              55              60
      Lys Leu Val Gln Asn Met Gly Gly Glu Ser Gly Gly Val Lys Arg Gln
      65              70              75              80
      Ala Gln Xaa Glu Pro Ser Ser Val Ser Thr His Arg Ile Leu Thr Leu
 45               85              90              95
      Lys Pro Xaa Ser Trp Gly Glu Tyr Trp Leu Val Leu Leu Leu Xaa Xaa
                  100             105             110
      Pro Arg Ser Ser Ser Xaa Xaa Xaa Cys Ser Xaa Ser Leu Pro Glu Lys
                  115             120             125
 50   Xaa Xaa Ser Leu Xaa Thr Asn Xaa Leu Leu Phe Glu Ala Leu Ala Leu
                  130             135             140
      Thr Ala Leu Xaa Gly Arg Leu Xaa Ile Xaa Glu Pro Pro Xaa Xaa Gly
      145             150             155             160
      Xaa Gly Phe Leu Phe Pro Phe Xaa Thr Leu
 55               165                 170


            <210> 904
            <211> 266
            <212> PRT
 60         <213> Homo sapiens


            <400> 904
      Gln Ser Thr Val Ala Ser Gly Thr Val Ala Arg Val Glu Pro Asn Ile
```

33₆

```
        1               5                   10                  15
     Lys Trp Phe Gly Asn Thr Arg Val Ile Lys Gln Ser Ser Leu Gln Lys
                 20                  25                  30
     Phe Gln Glu Glu Met Asp Thr Val Met Lys Asp Pro Tyr Lys Val Val
 5               35                  40                  45
     Met Lys Gln Ser Lys Leu Pro Met Ser Leu Leu His Asp Arg Ile Arg
                 50                  55                  60
     Pro His Asn Leu Lys Val His Ile Leu Asp Thr Glu Ser Phe Glu Thr
     65                  70                  75                  80
10   Thr Phe Gly Pro Lys Ser Gln Arg Lys Arg Pro Asn Leu Phe Ala Ser
                 85                  90                  95
     Asp Met Gln Ser Leu Ile Glu Asn Ala Glu Met Ser Thr Glu Ser Tyr
                 100                 105                 110
     Asp Gln Gly Lys Asp Arg Asp Leu Val Thr Glu Asp Thr Gly Val Arg
15               115                 120                 125
     Asn Glu Ala Gln Glu Glu Ile Tyr Lys Lys Gly Gln Ser Lys Arg Ile
                 130                 135                 140
     Trp Gly Glu Leu Tyr Lys Val Ile Asp Ser Ser Asp Val Val Val Gln
     145                 150                 155                 160
20   Val Leu Asp Ala Arg Asp Pro Met Gly Thr Arg Ser Pro His Ile Glu
                 165                 170                 175
     Thr Tyr Leu Lys Lys Glu Lys Pro Trp Lys His Leu Ile Phe Val Leu
                 180                 185                 190
     Asn Lys Cys Asp Leu Val Pro Thr Trp Ala Thr Lys Arg Xaa Val Ala
25               195                 200                 205
     Val Leu Phe Gln Asp Tyr Pro Thr Leu Ala Xaa His Ala Ser Leu Thr
                 210                 215                 220
     Xaa Pro Phe Gly Lys Gly Ala Phe Ile His Xaa Cys Gly Ser Phe Gly
     225                 230                 235                 240
30   Lys Leu Pro Thr Xaa Gln Glu Asn Arg Ser Xaa Val Gly Ser Leu Ala
                 245                 250                 255
     Phe Pro Lys Val Gly Lys Glu Xaa Leu Gly
                 260                 265


35        <210> 905
          <211> 257
          <212> PRT
          <213> Homo sapiens


40        <400> 905
     Gly Ser Xaa Ser Xaa Lys Thr Gln Pro Arg Pro Xaa Pro Gly Gly Glu
     1               5                   10                  15
     Ser Pro Xaa Xaa Leu Gln Gly Xaa Gly Ser Arg Phe Xaa Pro Xaa Xaa
                 20                  25                  30
45   Arg Xaa Xaa Lys Gly Pro Val Pro Cys Val Cys Leu Pro Gln Arg Cys
                 35                  40                  45
     Ser Xaa Xaa Xaa Xaa Glu Xaa Xaa Arg Thr Leu Val Lys Ser Thr Trp
                 50                  55                  60
     Xaa Leu Ser Phe Leu Gly Met Xaa Trp Phe Xaa Trp Arg Cys Gln Xaa
50   65                  70                  75                  80
     Phe Glu Glu Glu Leu Glu Ser Phe Phe Asp Glu Glu Glu Glu Glu Gln
                 85                  90                  95
     Glu Xaa Gln Arg Asp Xaa Ala Glu Glu Xaa Ser Ser Glu Pro Glu Glu
                 100                 105                 110
55   Glu Asn Val Gly Asn Asp Xaa Lys Ala Val Ile Lys Xaa Leu Asp Glu
                 115                 120                 125
     Lys Ile Ala Lys Tyr Gln Lys Phe Leu Asp Lys Ala Lys Ala Lys Lys
                 130                 135                 140
     Phe Ser Ala Val Arg Ile Ser Lys Gly Leu Ser Glu Lys Ile Phe Ala
60   145                 150                 155                 160
     Lys Pro Glu Glu Gln Xaa Xaa Xaa Leu Glu Glu Asp Val Asp Xaa Arg
                 165                 170                 175
     Ala Pro Ser Lys Lys Gly Lys Lys Arg Lys Xaa Gln Arg Glu Glu Glu
```

337

```
                    180                    185                    190
       Gln Glu His Ser Asn Lys Ala Pro Arg Xaa Leu Thr Ser Lys Glu Arg
                    195                    200                    205
  5    Arg Arg Ala Val Arg Gln Gln Arg Pro Lys Lys Val Gly Val Arg Xaa
                    210                    215                    220
       Tyr Glu Xaa Pro Asn Val Lys Asn Arg Asn Arg Asn Lys Lys Lys Thr
       225                    230                    235                    240
       Asn Asp Ser Glu Gly Gln Lys Xaa Xaa Arg Lys Lys Phe Arg Gln Lys
                         245                    250                    255
  10   Gln


          <210> 906
          <211> 242
  15      <212> PRT
          <213> Homo sapiens


          <400> 906
       Ala Glu Lys Leu Arg Ser Val Val Met Pro Met Glu Lys Glu Ile Ala
  20   1                   5                   10                  15
       Ala Leu Lys Asp Lys Leu Thr Glu Ala Glu Asp Lys Ile Lys Glu Leu
                    20                     25                     30
       Glu Ala Ser Lys Val Lys Glu Leu Asn His Tyr Leu Glu Ala Glu Lys
                    35                     40                     45
  25   Ser Cys Arg Thr Asp Leu Glu Met Tyr Val Ala Val Leu Asn Thr Gln
            50                     55                     60
       Lys Ser Val Leu Gln Glu Asp Ala Glu Lys Leu Arg Lys Glu Leu His
       65                     70                     75                     80
       Glu Val Cys His Leu Leu Glu Gln Glu Arg Gln Gln His Asn Gln Leu
  30                 85                     90                     95
       Lys His Thr Trp Gln Lys Ala Asn Asp Gln Phe Leu Glu Ser Gln Arg
                    100                    105                    110
       Leu Leu Met Arg Asp Met Gln Arg Met Glu Ile Val Leu Thr Ser Glu
                    115                    120                    125
  35   Gln Leu Arg Gln Val Glu Glu Leu Lys Lys Lys Asp Gln Glu Asp Asp
                    130                    135                    140
       Glu Gln Gln Arg Leu Asn Lys Arg Lys Asp His Lys Lys Ala Asp Val
       145                    150                    155                    160
       Glu Glu Glu Ile Lys Ile Pro Val Val Cys Ala Leu Thr Gln Glu Glu
  40                 165                    170                    175
       Ser Ser Ala Gln Leu Ser Asn Glu Glu Glu His Leu Asp Ser Thr Arg
                    180                    185                    190
       Gly Ser Val His Ser Leu Xaa Ala Gly Leu Leu Leu Pro Ser Gly Asp
                    195                    200                    205
  45   Pro Phe Ser Lys Ser Asp Asn Asp Met Phe Lys Asp Gly Leu Arg Arg
                    210                    215                    220
       Ala Gln Ser Ser Arg Gln Leu Trp Asp Pro Arg Ala His Cys Asn Xaa
       225                    230                    235                    240
       Lys Leu
  50


          <210> 907
          <211> 84
          <212> PRT
  55      <213> Homo sapiens


          <400> 907
       Pro Ser Gln Ile Lys Val Phe Phe Xaa Xaa Xaa Gly Pro Pro Ser Lys
       1                   5                   10                  15
  60   Lys Phe Phe Xaa Ser Xaa Lys Lys Gly Xaa Gly Xaa Lys Lys Phe Xaa
                    20                     25                     30
       Pro Xaa Leu Gly Lys Gly Xaa Gly Val Ser Xaa Gly Ala Lys Ser Xaa
                    35                     40                     45
```

338

```
        Pro Xaa Gly Asn Phe Leu Phe Trp Xaa Lys Lys Pro Xaa Xaa Ser Xaa
            50                      55                  60
        Leu Ser Phe Val Xaa Pro Met Cys Phe Gly Tyr Lys Gln Xaa Xaa Val
        65                      70                  75                  80
5       Ser Leu Ser Arg


            <210> 908
            <211> 108
10          <212> PRT
            <213> Homo sapiens


            <400> 908
        Asn Pro Thr Glu Leu Phe Phe Cys Leu Lys Gly Leu Asn Xaa Ala Xaa
15      1               5                   10                  15
        Tyr Ile Lys Xaa Pro Phe Met Leu Lys Thr Gln Leu Lys Glu Leu Val
                    20                  25                  30
        Ser Thr Trp Thr Gly Thr Xaa Xaa Phe Val Tyr Thr Gln Asn Thr Leu
                    35                  40                  45
20      Xaa Xaa Gln Asn Leu Xaa Ser Ser Xaa Xaa Val Phe Xaa Thr Lys Lys
            50                  55                  60
        Gly Asn Ser His Xaa Xaa Gly Ile Leu Pro Gln Xaa Lys Pro Leu Xaa
        65                  70                  75                  80
        Leu Ser Leu Asn Xaa Gly Xaa Ile Phe Leu Xaa Xaa Pro Leu Phe Phe
25                          85                  90                  95
        Xaa Xaa Lys Lys Ile Phe Trp Lys Gly Ala Gln Xaa
                    100                 105


            <210> 909
30          <211> 114
            <212> PRT
            <213> Homo sapiens


            <400> 909
35      Ala Phe Leu Leu Pro Lys Arg Ala Lys Xaa Cys Leu Xaa His Gln Xaa
        1               5                   10                  15
        Pro Ile Tyr Ala Glu Asn Pro Ile Glu Arg Ile Gly Phe Tyr Leu Asp
                    20                  25                  30
        Arg Asp Thr Xaa Xaa Cys Leu Tyr Pro Lys His Ile Xaa Xaa Thr Lys
40                  35                  40                  45
        Leu Xaa Lys Leu Xaa Xaa Gly Phe Xaa Tyr Gln Lys Arg Lys Phe Pro
            50                  55                  60
        Xaa Gly Xaa Asp Phe Ala Pro Xaa Glu Thr Pro Xaa Pro Phe Pro Lys
        65                  70                  75                  80
45      Xaa Gly Xaa Asn Phe Phe Xaa Xaa Pro Pro Phe Phe Xaa Xaa Lys Lys
                        85                  90                  95
        Asn Phe Leu Glu Gly Gly Pro Xaa Leu Xaa Lys Lys Thr Phe Ile Trp
                    100                 105                 110
        Glu Gly
50


            <210> 910
            <211> 164
            <212> PRT
55          <213> Homo sapiens


            <400> 910
        Lys Met Ala Ala Pro Glu Lys Met Thr Phe Pro Glu Lys Pro Ser His
        1               5                   10                  15
60      Lys Lys Tyr Arg Ala Ala Leu Lys Lys Glu Lys Arg Lys Lys Arg Arg
                    20                  25                  30
        Gln Glu Leu Ala Arg Leu Arg Asp Ser Gly Leu Ser Gln Lys Glu Glu
                    35                  40                  45
```

Glu Glu Asp Thr Phe Ile Glu Glu Gln Gln Leu Glu Glu Glu Lys Leu
    50   55   60
Leu Glu Arg Glu Arg Gln Arg Leu His Glu Glu Trp Leu Leu Arg Glu
65   70   75   80
Gln Lys Ala Gln Glu Glu Phe Arg Ile Lys Lys Glu Lys Glu Glu Ala
                85   90   95
Ala Lys Lys Arg Gln Glu Glu Gln Glu Arg Lys Leu Lys Glu Gln Trp
            100   105   110
Glu Glu Gln Gln Arg Lys Glu Arg Glu Glu Glu Gln Lys Arg Gln
        115   120   125
Glu Lys Lys Glu Lys Glu Glu Ala Leu Gln Lys Met Leu Asp Gln Ala
        130   135   140
Glu Asn Glu Leu Glu Asn Gly Thr Thr Trp Gln Asn Pro Glu Pro Pro
145   150   155   160
Trp Ile Ser Glu

        <210> 911
        <211> 141
        <212> PRT
        <213> Homo sapiens

        <400> 911
Ser Ser Ile Phe Cys Lys Ala Ser Ser Phe Ser Phe Phe Ser Cys Arg
1   5   10   15
Phe Cys Ser Ser Ser Ser Leu Ser Phe Leu Cys Cys Ser Ser His Cys
            20   25   30
Ser Phe Asn Phe Leu Ser Cys Ser Ser Cys Arg Phe Leu Ala Ala Ser
        35   40   45
Ser Phe Ser Phe Phe Ile Leu Asn Ser Ser Cys Ala Phe Cys Ser Leu
    50   55   60
Ser Asn His Ser Ser Cys Asn Leu Cys Leu Ser Leu Ser Asn Ser Phe
65   70   75   80
Ser Ser Ser Ser Cys Cys Ser Ser Ile Lys Val Ser Ser Ser Ser Ser
            85   90   95
Phe Cys Glu Ser Pro Glu Ser Leu Ser Arg Ala Ser Ser Cys Arg Arg
            100   105   110
Phe Phe Arg Phe Ser Phe Phe Arg Ala Ala Leu Tyr Phe Leu Trp Leu
            115   120   125
Gly Phe Ser Gly Asn Val Ile Phe Ser Gly Ala Ala Ile
    130   135   140

        <210> 912
        <211> 184
        <212> PRT
        <213> Homo sapiens

        <400> 912
Pro Gly Glu Lys Trp Arg Phe Gly Phe Phe Xaa Lys Pro Pro Asn Val
1   5   10   15
Gln Xaa Glu Xaa Pro Ala Xaa Phe Phe Met Gly Ser Glu Ile Xaa Xaa
        20   25   30
Ile Ile Phe Gly Xaa Val Ile Xaa Thr Phe Xaa Cys Phe Xaa Ile Gly
        35   40   45
Leu Xaa Xaa Pro Leu Gly Xaa Thr Pro Lys Xaa Gly Lys Gly Trp Ala
    50   55   60
Pro Pro Xaa Ile Phe Xaa Xaa Gly Xaa Gly Glu Xaa Lys Xaa Leu Val
65   70   75   80
Gln Xaa Xaa Pro Xaa Lys Lys Met Gly Asn Pro Lys Gly Lys Xaa Xaa
        85   90   95
Val Pro Gly Gly Xaa Xaa Phe Xaa Asn Ala Xaa Gln Lys Xaa Gly Xaa
        100   105   110
Gly Pro Ile Xaa Glu Ala Lys Glu Lys Ile Gly Pro Pro Xaa Gly Pro
                        340

```
              115                   120                   125
     Pro Pro Gly Ala Gly Ala Pro Gly Xaa Gly Xaa Gly Xaa Gly Xaa Pro
          130                   135                   140
     Gly Xaa Pro Pro Xaa Gly Ala Lys Val Pro Xaa Gly Pro Xaa Xaa Xaa
     145                   150                   155                   160
     Ala Xaa Gly Gly Xaa Val Xaa Xaa Xaa Xaa Xaa Xaa Xaa Val Xaa Asn
                   165                   170                   175
     Pro Xaa Lys Leu Val Xaa Phe Phe
               180


          <210> 913
          <211> 181
          <212> PRT
          <213> Homo sapiens


          <400> 913
     Lys Met Ala Ile Trp Val Phe Xaa Lys Thr Pro Gln Cys Pro Xaa Gly
     1               5                   10                  15
     Xaa Pro Cys Xaa Phe Phe His Gly Phe Arg Asn Pro Xaa Asn Tyr Phe
               20                  25                  30
     Trp Xaa Gly Asn Xaa Xaa Ile Xaa Leu Phe Pro Xaa Arg Thr Gly Xaa
          35                  40                  45
     Xaa Phe Gly Xaa Asn Ser Gln Xaa Arg Glu Arg Met Gly Pro Pro Xaa
          50                  55                  60
     Asp Phe Xaa Xaa Arg Leu Xaa Gly Xaa Lys Xaa Pro Ser Pro Xaa Xaa
     65                  70                  75                  80
     Ser Xaa Lys Lys Asn Gly Glu Ser Gln Arg Lys Ser Xaa Xaa Pro Arg
                   85                  90                  95
     Gly Xaa Xaa Phe Pro Xaa Arg Xaa Ser Lys Ser Xaa Xaa Xaa Pro Asn
               100                 105                 110
     Xaa Arg Ser Lys Gly Lys Asn Arg Ala Pro Xaa Arg Ala Pro Thr Arg
          115                 120                 125
     Gly Arg Gly Thr Arg Xaa Arg Xaa Arg Xaa Arg Xaa Pro Arg Xaa Pro
          130                 135                 140
     Pro Xaa Arg Ser Gln Ser Ser Phe Xaa Ser Xaa Xaa Xaa Gly Xaa Arg
     145                 150                 155                 160
     Arg Xaa Gly Xaa Lys Xaa Xaa Thr Xaa Xaa Ser Pro Xaa Ser Lys Xaa
                   165                 170                 175
     Thr Ser Phe Xaa Phe
               180


          <210> 914
          <211> 114
          <212> PRT
          <213> Homo sapiens


          <400> 914
     Lys Xaa Lys Leu Val Xaa Leu Asp Xaa Gly Xaa Xaa Xaa Val Xaa Xaa
     1               5                   10                  15
     Xaa Leu Pro Xaa Leu Xaa Leu Xaa Xaa Xaa Asp Xaa Lys Glu Leu
                   20                  25                  30
     Trp Leu Arg Xaa Gly Gly Xaa Leu Gly Xaa Arg Xaa Arg Xaa Arg Xaa
          35                  40                  45
     Arg Val Pro Arg Pro Arg Val Gly Ala Leu Xaa Gly Ala Leu Phe Phe
          50                  55                  60
     Pro Leu Leu Arg Xaa Leu Gly Xaa Ser Xaa Leu Phe Xaa Gly Arg Xaa
     65                  70                  75                  80
     Gly Xaa Xaa Phe Pro Leu Gly Xaa Xaa Leu Phe Leu Trp Asp Ser Pro
                   85                  90                  95
     Phe Phe Xaa Xaa Xaa Gly Xaa Gly Leu Gly Xaa Xaa Leu Pro Xaa Asn
               100                 105                 110
     Leu Xaa
```

```
        <210> 915
        <211> 202
        <212> PRT
        <213> Homo sapiens


        <400> 915
Pro Asn Leu His Xaa Trp Glu Ser Ala Leu Met Ile Trp Gly Ser Ile
1               5                   10                  15
Glu Lys Glu His Asp Lys Leu His Glu Glu Ile Gln Asn Leu Ile Lys
            20                  25                  30
Ile Gln Ala Ile Ala Val Cys Met Glu Asn Gly Asn Phe Lys Glu Ala
            35                  40                  45
Glu Glu Val Phe Glu Arg Ile Phe Gly Asp Pro Asn Ser His Met Pro
        50                  55                  60
Phe Lys Ser Lys Leu Leu Met Ile Ile Ser Gln Lys Asp Thr Phe His
65                  70                  75                  80
Ser Phe Phe Gln His Phe Ser Tyr Asn His Met Met Glu Lys Ile Lys
                85                  90                  95
Ser Tyr Val Asn Tyr Val Leu Ser Glu Lys Ser Ser Thr Phe Leu Met
                100                 105                 110
Lys Ala Ala Ala Lys Val Val Glu Ser Lys Arg Thr Arg Thr Ile Thr
            115                 120                 125
Ser Gln Asp Lys Pro Ser Gly Asn Asp Val Glu Met Glu Thr Glu Ala
        130                 135                 140
Asn Leu Asp Thr Arg Lys Ser Val Ser Asp Lys Gln Ser Ala Val Thr
145                 150                 155                 160
Glu Ser Ser Glu Gly Thr Val Ser Leu Leu Arg Ser His Lys Asn Leu
            165                 170                 175
Phe Leu Ser Lys Leu Gln His Gly Thr Gln Gln Gln Asp Leu Asn Lys
            180                 185                 190
Lys Glu Arg Arg Val Gly Thr Pro Gln Ser
            195                 200


        <210> 916
        <211> 217
        <212> PRT
        <213> Homo sapiens


        <400> 916
Leu Arg Lys Glu Leu Glu Arg Gln Ala Glu Arg Leu Glu Lys Glu Leu
1               5                   10                  15
Ala Ser Gln Gln Glu Lys Arg Ala Ile Glu Lys Asp Met Met Lys Lys
            20                  25                  30
Glu Ile Thr Lys Glu Arg Glu Tyr Met Gly Ser Lys Met Leu Ile Leu
            35                  40                  45
Ser Gln Asn Ile Ala Gln Leu Glu Ala Gln Val Glu Lys Val Thr Lys
        50                  55                  60
Glu Lys Ile Ser Ala Ile Asn Gln Leu Glu Glu Ile Gln Ser Gln Leu
65                  70                  75                  80
Ala Ser Arg Glu Met Asp Val Thr Lys Val Cys Gly Glu Met Arg Tyr
                85                  90                  95
Gln Leu Asn Lys Thr Asn Met Glu Lys Asp Glu Ala Glu Lys Glu His
                100                 105                 110
Arg Glu Phe Arg Ala Lys Thr Asn Arg Asp Leu Glu Ile Lys Asp Gln
            115                 120                 125
Glu Ile Glu Lys Leu Arg Ile Glu Leu Asp Glu Ser Lys Gln His Leu
            130                 135                 140
Glu Gln Glu Gln Gln Lys Ala Ala Leu Ala Arg Glu Glu Cys Leu Arg
145                 150                 155                 160
Leu Thr Glu Leu Leu Gly Glu Ser Glu His Gln Leu His Leu Thr Arg
            165                 170                 175
Gln Glu Lys Asp Ser Ile Gln Gln Ser Phe Ser Lys Glu Ala Lys Ala
```

342

```
                    180                185                190
        Gln Ala Leu Gln Pro Ser Lys Glu Ser Arg Ser Leu Pro Gln Lys Ile
                195                200                205
        Ser Lys Trp Asn Pro Pro Cys Lys Thr
 5          210                215


                <210> 917
                <211> 107
                <212> PRT
10              <213> Homo sapiens


                <400> 917
        Pro Lys Lys Leu Asp Gln Xaa Ser Gln Lys Pro Arg Ser Glu Ile Ala
        1               5                10                15
15      Gln Leu Ser Gln Glu Lys Arg Tyr Thr Tyr Asp Lys Leu Gly Lys Xaa
                    20                25                30
        Gln Arg Arg Asn Glu Glu Leu Glu Glu Gln Cys Val Gln His Gly Arg
                35                40                45
        Val His Glu Xaa Met Lys Gln Arg Leu Arg Gln Leu Asp Lys His Ser
20          50                55                60
        Gln Ala Thr Ala Gln Gln Leu Val Gln Leu Leu Ser Lys Gln Asn Gln
        65                70                75                80
        Leu Leu Leu Glu Arg Gln Ser Leu Ser Glu Glu Val Asp Arg Leu Arg
                    85                90                95
25      Thr Gln Leu Pro Ser Met Pro Gln Xaa Asp Cys
                    100                105


                <210> 918
                <211> 98
30              <212> PRT
                <213> Homo sapiens


                <400> 918
        Pro Leu Leu His Xaa Leu Met Tyr Ser Pro Met Leu Asp Thr Leu Phe
35      1               5                10                15
        Leu Gln Phe Phe Ile Ser Ser Leu Xaa Leu Ser Gln Phe Ile Ile Cys
                    20                25                30
        Ile Pro Phe Phe Leu Thr Glu Leu Ser Tyr Phe Arg Ser Gly Phe Leu
                35                40                45
40      Arg Xaa Leu Val Gln Phe Leu Gly Leu Met Xaa Asn Ile Leu Pro Leu
            50                55                60
        Thr Phe Val Lys Asn Val Phe Leu Gly Xaa Gln Gln Gln Asn Thr Gly
        65                70                75                80
        His Phe Gln Xaa Trp His Ala Gly Leu Ser Phe Ala Gly Ile Phe Trp
45                  85                90                95
        Xaa Thr



                <210> 919
50              <211> 98
                <212> PRT
                <213> Homo sapiens


                <400> 919
55      Ile Ile Tyr Phe Thr Leu Phe His Pro Gly Gln Gln Ser Xaa Cys Gly
        1               5                10                15
        Met Leu Gly Asn Trp Val Arg Ser Arg Ser Thr Ser Ser Asp Arg Leu
                    20                25                30
        Cys Leu Ser Arg Arg Ser Trp Phe Cys Leu Leu Arg Ser Cys Thr Ser
60                  35                40                45
        Cys Trp Ala Val Ala Trp Leu Cys Leu Ser Ser Cys Leu Ser Leu Cys
                50                55                60
        Phe Ile Xaa Ser Cys Thr Leu Pro Cys Trp Thr His Cys Ser Ser Asn
```

343

```
          65                    70                    75                    80
          Ser Ser Phe Leu Leu Xaa Asn Phe Pro Asn Leu Ser Tyr Val Tyr Leu
                          85                    90                    95
          Phe Ser


               <210> 920
               <211> 236
               <212> PRT
               <213> Homo sapiens


               <400> 920
          Gln Thr His Thr Asn Val His Met Gln Thr Ile Glu Arg Leu Val Lys
           1               5                    10                    15
          Glu Arg Asp Asp Leu Met Ser Ala Leu Val Ser Val Arg Ser Ser Leu
                          20                    25                    30
          Ala Asp Thr Gln Gln Arg Glu Ala Ser Ala Tyr Glu Gln Val Lys Gln
                          35                    40                    45
          Val Leu Gln Ile Ser Glu Glu Ala Asn Phe Glu Lys Thr Lys Ala Leu
                50                    55                    60
          Ile Gln Cys Asp Gln Leu Arg Lys Glu Leu Glu Arg Gln Ala Glu Arg
          65                    70                    75                    80
          Leu Glu Lys Glu Leu Ala Ser Gln Gln Glu Lys Arg Ala Ile Glu Lys
                          85                    90                    95
          Asp Met Met Lys Lys Glu Ile Thr Lys Glu Arg Glu Tyr Met Gly Ser
                          100                   105                   110
          Lys Met Leu Ile Leu Ser Gln Asn Ile Ala Gln Leu Glu Ala Gln Val
                          115                   120                   125
          Glu Lys Val Thr Lys Glu Lys Ile Ser Ala Ile Asn Gln Leu Glu Glu
                130                   135                   140
          Ile Gln Ser Gln Leu Ala Ser Arg Glu Met Asp Val Thr Lys Val Cys
          145                   150                   155                   160
          Gly Glu Met Arg Tyr Gln Leu Asn Lys Thr Asn Met Glu Lys Asp Glu
                          165                   170                   175
          Ala Glu Lys Glu His Arg Glu Phe Arg Ala Lys Thr Asn Arg Asp Leu
                          180                   185                   190
          Glu Ile Lys Asp Gln Glu Ile Glu Lys Leu Arg Ile Glu Leu Asp Glu
                          195                   200                   205
          Ser Lys His Thr Trp Asn Arg Ser Ser Xaa Arg His Pro Gly Gln Lys
                210                   215                   220
          Xaa Val Pro Glu Thr Asn Xaa Thr Ala Gly Arg Ile
          225                   230                   235


               <210> 921
               <211> 112
               <212> PRT
               <213> Homo sapiens


               <400> 921
          Met Tyr Leu Phe Pro Val Trp Xaa Arg Ala Val Gly Ser Asp Ser Pro
           1               5                    10                    15
          Ser Ser Xaa Val Ser Leu Arg His Xaa Phe Leu Ala Arg Val Pro Xaa
                          20                    25                    30
          Ala Ala Pro Val Pro Ser Val Phe Ala Phe Ile Gln Phe Tyr Ser Gln
                          35                    40                    45
          Phe Leu Tyr Phe Leu Ile Phe Asn Phe Lys Ile Pro Val Ser Phe Cys
                50                    55                    60
          Ser Glu Leu Ser Val Leu Leu Phe Cys Leu Ile Leu Leu His Val Gly
          65                    70                    75                    80
          Phe Ile Gln Leu Ile Ala His Phe Ser Thr His Leu Cys Asp Ile His
                          85                    90                    95
          Phe Pro Arg Ser Gln Leu Ala Leu Asn Phe Leu Gln Leu Ile Asn Ser
                          100                   105                   110
```

344

```
            <210> 922
            <211> 186
            <212> PRT
5           <213> Homo sapiens


            <400> 922
      Leu Xaa Gly Asp Phe Glu Xaa Gln Xaa Xaa Xaa Pro Gln Gln Glu Lys
      1               5               10              15
10    Val Ser Phe Xaa Gln Xaa Phe Xaa Lys Glu Glu Arg Pro Lys Pro Xaa
                    20              25              30
      Arg Pro Arg Lys Xaa Ser Arg Ser Cys Xaa Arg Asn Xaa Ala Asn Gly
                35              40              45
      Ser Pro Ala Cys Gln Asn Xaa Lys Met Thr Ser Phe Xaa Cys Cys Xaa
.15         50              55              60
      Pro Arg Ile His Phe Cys Lys Val Lys Glu Arg Met Leu Tyr Ile Ser
      65              70              75              80
      Gln Glu Thr Gly Pro Xaa Ser Gln Lys Thr Arg Phe Glu Ile Ala Gln
                    85              90              95
20    Leu Ser Gln Glu Lys Arg Tyr Thr Tyr Asp Lys Leu Gly Lys Xaa Gln
                    100             105             110
      Arg Arg Asn Glu Glu Leu Glu Glu Gln Cys Val Gln His Gly Arg Val
                115             120             125
      His Glu Thr Met Lys Gln Arg Leu Arg Gln Leu Asp Lys His Ser Gln
25          130             135             140
      Ala Thr Ala Gln Gln Leu Val Gln Leu Leu Ser Lys Gln Asn Gln Leu
      145             150             155             160
      Leu Leu Glu Arg Gln Ser Leu Ser Glu Glu Val Asp Arg Leu Arg Thr
                    165             170             175
30    Gln Leu Pro Ser Met Pro Gln Ser Asp Cys
                    180             185


            <210> 923
            <211> 135
35          <212> PRT
            <213> Homo sapiens


            <400> 923
      Pro Leu Leu His Arg Leu Met Tyr Ser Pro Met Leu Asp Thr Leu Phe
40    1               5               10              15
      Leu Gln Phe Phe Ile Ser Ser Leu Xaa Leu Ser Gln Phe Ile Ile Cys
                    20              25              30
      Ile Pro Phe Phe Leu Thr Glu Leu Ser Tyr Phe Lys Ser Gly Phe Leu
                35              40              45
45    Arg Xaa Trp Ser Ser Phe Leu Ala Asn Val Gln His Ser Phe Phe Asn
          50              55              60
      Phe Ala Lys Met Tyr Ser Gly Xaa Ala Thr Xaa Lys Thr Gly His Phe
      65              70              75              80
      Xaa Val Leu Ala Cys Trp Ala Ser Ile Cys Xaa Ile Ser Xaa Ala Thr
50              85              90              95
      Pro Ala Xaa Phe Ser Trp Pro Xaa Arg Leu Gly Pro Phe Phe Leu Xaa
                    100             105             110
      Lys Xaa Leu Xaa Lys Ala Asn Phe Phe Leu Leu Gly Xaa Xaa Xaa Leu
                115             120             125
55    Xaa Leu Lys Ile Pro Xaa Gln
                130             135


            <210> 924
            <211> 159
60          <212> PRT
            <213> Homo sapiens


            <400> 924
```

345

```
Ala Asp Arg Glu Gly Gly Cys Ala Ala Gly Arg Gly Arg Glu Leu Glu
 1               5                   10              15
Pro Glu Leu Glu Pro Gly Pro Gly Pro Gly Ser Ala Leu Glu Xaa Gly
             20                  25              30
Glu Glu Phe Glu Ile Val Asp Arg Ser Gln Leu Pro Gly Pro Gly Asp
         35                  40              45
Leu Arg Ser Ala Thr Arg Pro Arg Ala Ala Glu Gly Trp Ser Ala Pro
     50                  55              60
Ile Leu Thr Leu Ala Arg Arg Ala Thr Gly Asn Leu Ser Ala Ser Cys
 65                  70              75                  80
Gly Ser Ala Leu Arg Ala Ala Ala Gly Leu Gly Gly Gly Asp Ser Gly
             85              90                  95
Asp Gly Thr Ala Arg Ala Ala Ser Lys Cys Gln Met Met Glu Glu Arg
             100             105             110
Ala Asn Leu Met His Met Met Lys Leu Ser Ile Lys Val Leu Leu Gln
             115             120             125
Ser Ala Leu Ser Leu Gly Arg Ser Leu Asp Ala Asp His Ala Pro Leu
     130             135             140
Gln Gln Phe Phe Cys Ser Asp Gly Ala Leu Pro Gln Thr Trp Ala
 145             150             155
```

```
        <210> 925
        <211> 154
        <212> PRT
        <213> Homo sapiens


        <400> 925
Gly Ser Ala Pro Ser Leu Gln Lys Asn Cys Cys Lys Gly Ala Trp Ser
 1               5                   10              15
Ala Ser Arg Leu Arg Pro Arg Leu Arg Ala Asp Trp Ser Asn Thr Leu
             20                  25              30
Met Leu Ser Phe Ile Met Cys Ile Arg Leu Ala Arg Ser Ser Ile Ile
         35                  40              45
Trp His Leu Glu Ala Ala Arg Ala Val Pro Ser Pro Leu Ser Pro Pro
     50                  55              60
Pro Ser Pro Ala Ala Ala Arg Ser Ala Leu Pro Gln Leu Ala Asp Arg
 65                  70              75                  80
Phe Pro Val Ala Leu Arg Ala Arg Val Arg Met Gly Ala Asp Gln Pro
             85                  90                  95
Ser Ala Ala Arg Gly Leu Val Ala Leu Arg Arg Ser Pro Gly Pro Gly
             100             105             110
Ser Trp Leu Arg Ser Thr Ile Ser Asn Ser Ser Xaa Gly Ser Ser Ala
     115             120             125
Asp Pro Gly Pro Gly Pro Gly Ser Ser Ser Gly Ser Ser Ser Arg Pro
     130             135             140
Arg Pro Ala Ala Gln Pro Pro Ser Arg Ser
 145             150
```

```
        <210> 926
        <211> 134
        <212> PRT
        <213> Homo sapiens


        <400> 926
Leu Ser Ser Pro Cys Leu Arg Gln Cys Ser Ile Thr Thr Lys Glu Leu
 1               5                   10              15
Leu Gln Gly Gly Met Val Arg Ile Gln Ala Ala Ala Gln Ala Gln Ser
             20                  25              30
Arg Leu Glu Gln His Leu Asp Ala Glu Phe His His Val His Gln Val
         35                  40              45
Gly Thr Leu Leu His His Leu Ala Leu Arg Ser Cys Ala Arg Arg Ala
     50                  55              60
Val Pro Ala Val Pro Ala Ala Gln Pro Arg Gly Arg Ala Gln Arg Ala
```

346

```
        65                  70                  75                  80
        Pro Ala Ala Arg Arg Gln Val Pro Gly Gly Pro Ala Cys Gln Gly Gln
                        85                  90                  95
        Asp Gly Arg Arg Pro Ala Leu Gly Arg Pro Arg Pro Arg Cys Ala Pro
  5                     100                 105                 110
        Gln Val Ala Trp Ala Gly Gln Leu Ala Ser Val His Asp Leu Lys Leu
                        115                 120                 125
        Phe Ser Xaa Leu Lys Arg
                        130
 10
            <210> 927
            <211> 424
            <212> PRT
            <213> Homo sapiens
 15
            <400> 927
        Ile Arg Tyr Leu Glu Val Leu Cys Thr Lys Lys Val Ser Glu Lys Met
        1                   5                   10                  15
        Glu Phe Phe Asn Ile Ser Val Asp Asn Thr Cys Ser Leu Phe Arg Gly
 20                     20                  25                  30
        Leu Gln Lys Glu Glu Val Val Leu Leu Thr His Gly Asp Ser Val Asp
                        35                  40                  45
        Lys Val Ala Asp Gly Phe Lys Val Val Ala Arg Ser Gly Asn Ile Val
                        50                  55                  60
 25     Ala Gly Ile Ala Asn Glu Ser Lys Lys Leu Tyr Gly Ala Gln Phe His
        65                  70                  75                  80
        Pro Glu Val Gly Leu Thr Glu Asn Gly Lys Val Ile Leu Lys Asn Phe
                        85                  90                  95
        Leu Tyr Asp Ile Thr Gly Cys Ser Gly Thr Phe Thr Val Gln Asn Arg
 30                     100                 105                 110
        Glu Leu Glu Cys Ile Arg Glu Ile Lys Glu Arg Val Gly Thr Ser Lys
                        115                 120                 125
        Val Leu Val Leu Leu Ser Gly Gly Val Asp Ser Thr Val Cys Thr Ala
                        130                 135                 140
 35     Leu Leu Asn Arg Ala Leu Asn Gln Glu Gln Val Ile Ala Val His Ile
        145                 150                 155                 160
        Asp Asn Gly Phe Met Arg Lys Arg Glu Ser Gln Ser Val Glu Glu Ala
                        165                 170                 175
        Leu Lys Lys Leu Gly Ile Gln Val Lys Val Ile Asn Ala Ala His Ser
 40                     180                 185                 190
        Phe Tyr Asn Gly Thr Thr Thr Leu Pro Ile Ser Asp Glu Asp Arg Thr
                        195                 200                 205
        Pro Arg Lys Arg Ile Ser Lys Thr Leu Asn Met Thr Thr Ser Pro Glu
                        210                 215                 220
 45     Glu Lys Arg Lys Ile Ile Gly Asp Thr Phe Val Lys Ile Ala Asn Glu
        225                 230                 235                 240
        Val Ile Gly Glu Met Asn Leu Lys Pro Glu Glu Val Phe Leu Ala Gln
                        245                 250                 255
        Gly Thr Leu Arg Pro Asp Leu Ile Glu Ser Ala Ser Leu Val Ala Ser
 50                     260                 265                 270
        Gly Lys Ala Glu Leu Ile Lys Thr His His Asn Asp Thr Glu Leu Ile
                        275                 280                 285
        Lys Lys Leu Arg Glu Glu Gly Lys Val Ile Glu Pro Leu Lys Asp Phe
                        290                 295                 300
 55     His Lys Asp Glu Val Arg Ile Leu Gly Arg Glu Leu Gly Leu Pro Glu
        305                 310                 315                 320
        Glu Leu Val Ser Arg His Pro Phe Pro Gly Pro Gly Leu Ala Ile Arg
                        325                 330                 335
        Val Ile Cys Ala Glu Glu Pro Tyr Ile Cys Lys Asp Phe Pro Glu Thr
 60                     340                 345                 350
        Asn Asn Ile Leu Lys Ile Val Ala Asp Phe Ser Ala Ser Val Lys Lys
                        355                 360                 365
        Pro His Thr Leu Leu Gln Arg Val Lys Ala Cys Thr Thr Glu Glu Asp
                                347
```

```
            370                      375                      380
         Gln Glu Lys Leu Met Gln Ile Thr Ser Leu His Ser Leu Asn Ala Phe
         385                      390                      395                      400
         Leu Leu Pro Ile Lys Thr Val Xaa Val Gln Gly Asp Cys Arg Ser Tyr
   5                         405                      410                      415
         Ser Tyr Arg Val Trp Asn Xaa Gln
                         420


            <210> 928
  10        <211> 191
            <212> PRT
            <213> Homo sapiens


            <400> 928
  15     Pro Arg Ser Ala Ala Val Ala Pro Phe Gly Ala Phe Leu Ala Ala Gly
            1               5                      10                      15
         Ser Ser Pro Leu Pro Ala Ala Pro Arg Pro Gly Leu Leu Leu Asn Leu
                         20                      25                      30
         Ser Pro Arg Arg Arg Pro Phe Arg His Pro Pro Ala Pro Ser Arg Thr
  20                     35                      40                      45
         Val Ala Val Thr Ala Ala Ala Pro Ala Leu Ala Pro Met Ala Leu Cys
                         50                      55                      60
         Asn Gly Asp Ser Lys Leu Glu Asn Ala Gly Gly Asp Leu Lys Asp Gly
         65                      70                      75                      80
  25     His His His Tyr Glu Gly Ala Val Val Ile Leu Asp Ala Gly Ala Gln
                         85                      90                      95
         Tyr Gly Lys Val Ile Asp Arg Arg Val Arg Glu Leu Phe Val Gln Ser
                         100                     105                     110
         Glu Ile Phe Pro Leu Glu Thr Pro Ala Phe Ala Ile Lys Glu Gln Gly
  30                     115                     120                     125
         Phe Arg Ala Ile Ile Ile Ser Gly Gly Pro Asn Ser Val Tyr Ala Glu
                         130                     135                     140
         Asp Ala Pro Trp Phe Asp Pro Thr Ile Phe Thr Ile Gly Lys Pro Val
         145                     150                     155                     160
  35     Leu Gly Ile Cys Tyr Gly Met Gln Met Met Asn Lys Val Phe Gly Gly
                         165                     170                     175
         Thr Val His Lys Lys Ser Val Arg Lys Asp Gly Val Phe Gln His
                         180                     185                     190


  40        <210> 929
            <211> 203
            <212> PRT
            <213> Homo sapiens


  45        <400> 929
         Arg Pro Leu Asn Asn Glu His Val Leu Ser Thr Leu Met Leu Lys Asn
            1               5                      10                      15
         Ser Ile Phe Ser Asp Thr Phe Phe Val His Ser Thr Ser Lys Tyr Leu
                         20                      25                      30
  50     Ile His His Leu His Thr Ile Ala Asn Ser Lys Asn Arg Leu Ala Asn
                         35                      40                      45
         Ser Glu Tyr Cys Trp Ile Lys Pro Gly Ser Ile Phe Ser Ile His Arg
                         50                      55                      60
         Ile Arg Ser Ser Arg Asp Asp Asn Ser Thr Glu Ser Leu Phe Leu Tyr
  55     65                      70                      75                      80
         Ser Lys Cys Trp Cys Phe Gln Gly Glu Asn Phe Arg Leu His Glu Gln
                         85                      90                      95
         Phe Pro His Ser Ser Val Tyr Asp Phe Pro Val Leu Ser Thr Ser Ile
                         100                     105                     110
  60     Gln Asn Asp Asn Ser Ser Phe Ile Val Val Val Ala Ile Leu Lys Val
                         115                     120                     125
         Ser Ser Ser Ile Leu Gln Leu Gly Val Ser Val Ala Gln Ser His Arg
                         130                     135                     140
```

```
Gly Gln Gly Arg Ser Arg Gly Gly Asp Gly Asp Ser Thr Arg Arg Gly
145             150             155                 160
Gly Arg Val Pro Glu Gly Ser Ala Pro Arg Ala Glu Val Glu Lys Glu
            165             170                 175
Ala Trp Ser Arg Ser Ser Arg Gln Arg Arg Gly Ala Ser Arg Gln Lys
        180             185                 190
Ser Ala Glu Trp Ser Asn Ser Ser Gly Ala Arg
        195             200
```

```
<210> 930
<211> 236
<212> PRT
<213> Homo sapiens
```

```
<400> 930
Pro Arg Ser Ala Ala Val Ala Pro Phe Gly Ala Phe Leu Ala Ala Gly
 1               5               10                  15
Ser Ser Pro Leu Pro Ala Ala Pro Arg Pro Gly Leu Leu Leu Asn Leu
            20              25                  30
Ser Pro Arg Arg Arg Pro Phe Arg His Pro Pro Ala Pro Ser Arg Thr
            35              40                  45
Val Ala Val Thr Ala Ala Ala Pro Ala Leu Ala Pro Met Ala Leu Cys
        50              55                  60
Asn Gly Asp Ser Lys Leu Glu Asn Ala Gly Gly Asp Leu Lys Asp Gly
·65              70              75                  80
His His His Tyr Glu Gly Ala Val Val Ile Leu Asp Ala Gly Ala Gln
            85              90                  95
Tyr Gly Lys Val Ile Asp Arg Arg Val Arg Glu Leu Phe Val Gln Ser
            100             105                 110
Glu Ile Phe Pro Leu Glu Thr Pro Ala Phe Ala Ile Lys Glu Gln Gly
            115             120                 125
Phe Arg Ala Ile Ile Ile Ser Gly Gly Pro Asn Ser Val Tyr Ala Glu
        130             135                 140
Asp Ala Pro Trp Phe Asp Pro Thr Ile Phe Thr Ile Gly Lys Pro Val
145             150             155                 160
Leu Gly Ile Cys Tyr Gly Met Xaa Met Met Asn Xaa Val Phe Gly Gly
            165             170                 175
Thr Val His Lys Lys Lys Cys Gln Lys Arg Trp Ser Phe Ser Thr Leu
            180             185                 190
Val Xaa Ile Ile His Val His Tyr Ser Xaa Ala Phe Xaa Lys Glu Lys
        195             200                 205
Leu Val Leu Ala Tyr Thr Trp Glu Asn Ser Val Lys Gln Ser Asn Leu
        210             215                 220
Met Glu Xaa Lys Val Gly Ala Pro Phe Trp Xaa Lys
225             230                 235
```

```
<210> 931
<211> 189
<212> PRT
<213> Homo sapiens
```

```
<400> 931
Lys Thr Pro Ser Phe Leu Thr Leu Phe Phe Val His Ser Thr Ser Lys
 1               5               10                  15
Tyr Xaa Ile His His Xaa His Thr Ile Ala Asn Ser Lys Asn Arg Leu
            20              25                  30
Ala Asn Ser Glu Tyr Cys Trp Ile Lys Pro Gly Ser Ile Phe Ser Ile
        35              40                  45
His Arg Ile Arg Ser Ser Arg Asp Asp Asn Ser Thr Glu Ser Leu Phe
 50              55                  60
Leu Tyr Ser Lys Cys Trp Cys Phe Gln Gly Glu Asn Phe Arg Leu His
65              70              75                  80
Glu Gln Phe Pro His Ser Ser Val Tyr Asp Phe Pro Val Leu Ser Thr
```

```
                        85                      90                      95
        Ser Ile Gln Asn Asp Asn Ser Ser Phe Ile Val Val Val Ala Ile Leu
                        100                     105                     110
        Lys Val Ser Ser Ser Ile Leu Gln Leu Gly Val Ser Val Ala Gln Ser
5                       115                     120                     125
        His Arg Gly Gln Gly Arg Ser Arg Gly Gly Asp Gly Asp Ser Thr Arg
                        130                     135                     140
        Arg Gly Gly Arg Val Pro Glu Gly Ser Ala Pro Arg Ala Glu Val Glu
        145                     150                     155                     160
10      Lys Glu Ala Trp Ser Arg Ser Ser Arg Gln Arg Arg Gly Ala Ser Arg
                        165                     170                     175
        Gln Lys Ser Ala Glu Trp Ser Asn Ser Ser Gly Ala Arg
                        180                     185
```

```
15          <210> 932
            <211> 175
            <212> PRT
            <213> Homo sapiens


20          <400> 932
        Val Cys Arg Gly Leu Trp Phe Pro Gln Leu Gly Gly Xaa Xaa Ser Ser
        1               5                       10                      15
        Lys Asn Asp Pro Xaa Trp Glu Xaa Leu Xaa Phe Xaa Xaa Arg Leu Xaa
                        20                      25                      30
25      Pro Gly Met Cys His Asn Val Asn Xaa Val Val Tyr Ile Phe Gly Xaa
                        35                      40                      45
        Pro Val Lys Xaa Pro Xaa Thr Xaa Val Thr Pro Pro Phe Leu Thr Thr
                        50                      55                      60
        Gly Xaa Val Ser Thr Leu Arg Gln Xaa Asp Phe Xaa Ala His Asn Ile
30      65                      70                      75                      80
        Phe Arg Glu Phe Gly Tyr Xaa Gly Lys Ile Xaa Gln Xaa Pro Xaa Ile
                        85                      90                      95
        Leu Xaa Pro Leu His Phe Asp Xaa Xaa Xaa Leu Gln Xaa Gln Pro Xaa
                        100                     105                     110
35      Cys Xaa Arg Phe Xaa Val Ile Arg Xaa Phe Ile Xaa Xaa Asp Phe Met
                        115                     120                     125
        Thr Xaa Xaa Pro Ala Xaa Pro Gly Asn Glu Ile Pro Val Lys Xaa Val
                        130                     135                     140
        Leu Xaa Met Val Xaa Xaa Ile Xaa Xaa Ile Pro Xaa Ile Xaa Arg Ile
40      145                     150                     155                     160
        Met Tyr Asp Leu Thr Ser Lys Pro Pro Gly Thr Xaa Glu Xaa Xaa
                        165                     170                     175
```

```
            <210> 933
45          <211> 202
            <212> PRT
            <213> Homo sapiens


            <400> 933
50      Gly Asn Ile Val Ala Gly Ile Ala Asn Glu Ser Lys Lys Leu Tyr Gly
        1               5                       10                      15
        Ala Gln Phe His Pro Glu Val Gly Leu Thr Glu Asn Gly Lys Val Ile
                        20                      25                      30
        Leu Lys Asn Phe Leu Tyr Asp Ile Ala Gly Cys Ser Gly Thr Phe Thr
55                      35                      40                      45
        Val Gln Asn Arg Glu Leu Glu Cys Ile Arg Glu Ile Lys Glu Arg Val
                50                      55                      60
        Gly Thr Ser Lys Val Leu Val Leu Leu Ser Gly Gly Val Asp Ser Thr
        65                      70                      75                      80
60      Val Cys Thr Ala Leu Leu Asn Arg Ala Leu Asn Gln Glu Gln Val Ile
                        85                      90                      95
        Ala Val His Ile Asp Asn Gly Phe Met Arg Lys Arg Glu Ser Gln Ser
                        100                     105                     110
```

```
        Val Glu Glu Ala Leu Lys Lys Leu Gly Ile Gln Val Lys Val Ile Asn
                115                 120                 125
        Ala Ala His Ser Phe Tyr Asn Gly Thr Thr Thr Leu Pro Ile Ser Asp
                130                 135                 140
 5      Glu Asp Arg Thr Pro Arg Lys Arg Ile Ser Lys Thr Leu Asn Met Thr
        145                 150                 155                 160
        Thr Ser Pro Glu Glu Lys Arg Lys Ile Ile Gly Asp Thr Phe Val Lys
                    165                 170                 175
        Ile Ala Asn Glu Val Ile Gly Glu Met Asn Leu Lys Pro Xaa Glu Val
10                  180                 185                 190
        Phe Leu Ala Gln Gly Leu Tyr Xaa Leu Ile
                195                 200
```

```
        <210> 934
15      <211> 152
        <212> PRT
        <213> Homo sapiens
```

```
        <400> 934
20      Pro Ala Xaa Tyr Phe Xaa Lys Lys Met Val Gly Phe Lys Lys Xaa Pro
        1               5               10                  15
        Xaa Pro Lys Lys Lys Val Phe Ser Ser Thr Tyr Tyr Phe Xaa Ile Ala
                    20                  25                  30
        Gln Ala Gln Xaa Pro Gly Lys Trp Lys Ala Trp Lys Thr Asn Xaa Xaa
25              35                  40                  45
        Trp Lys Val Gln Val Xaa Trp Pro Lys Asn Ser His Phe Ile Phe Asn
            50                  55                  60
        Glu Ile Phe Pro Xaa Val Leu Ile Thr Phe Pro Xaa Xaa Ser Gln Leu
        65                  70                  75                  80
30      Phe Asp Glu Leu Xaa Val Ile Val Met Gly Phe Asp Glu Ser Ser Phe
                        85                  90                  95
        Ala Thr Cys Asn Lys Xaa Trp His Phe Gln Leu Asp Gln Xaa Val Lys
                    100                 105                 110
        Thr Leu Gly Lys Glu Asn Leu Xaa Trp Phe Gln Val His Phe Ser Asn
35              115                 120                 125
        Tyr Phe Ile Gly Asn Leu Asn Lys Ser Ile Pro Asn Asp Phe Ser Phe
                130                 135                 140
        Leu Phe Arg Thr Cys Gly His Ile
        145                 150
```

```
40      <210> 935
        <211> 176
        <212> PRT
        <213> Homo sapiens
45
```

```
        <400> 935
        Val Cys Arg Val Thr Val Val Pro Thr Val Thr Cys Val Glu Ser Pro
        1               5               10                  15
        Val Lys Met Asn Leu Thr Gly Asn His Phe Ile Phe Leu Ala Arg Leu
50                  20                  25                  30
        Ile Pro Arg Met Cys His Asn Val Asn Arg Val Val Tyr Ile Phe Gly
                35                  40                  45
        Pro Pro Val Lys Glu Pro Pro Thr Asp Val Thr Pro Thr Phe Leu Thr
            50                  55                  60
        Thr Gly Val Leu Ser Thr Leu Arg Gln Ala Asp Phe Glu Ala His Asn
55      65                  70                  75                  80
        Ile Leu Arg Glu Ser Gly Tyr Ala Gly Lys Ile Ser Gln Met Pro Val
                        85                  90                  95
        Ile Leu Thr Pro Leu His Phe Asp Arg Asp Pro Leu Gln Lys Gln Pro
60                  100                 105                 110
        Ser Cys Gln Arg Ser Val Val Ile Arg Thr Phe Ile Thr Ser Asp Phe
                115                 120                 125
        Met Thr Gly Ile Pro Ala Thr Pro Gly Asn Glu Ile Pro Val Glu Val
```

```
         130                    135                    140
         Val Leu Lys Met Val Thr Glu Ile Lys Lys Ile Pro Gly Ile Ser Arg
         145                    150                    155                    160
         Ile Met Tyr Asp Leu Thr Ser Lys Pro Pro Gly Thr Thr Glu Trp Glu
                         165                    170                    175


         <210> 936
         <211> 218
         <212> PRT
         <213> Homo sapiens


         <400> 936
         Arg Thr Pro Arg Lys Arg Ile Ser Lys Thr Leu Asn Met Thr Thr Ser
         1               5                    10                    15
         Pro Glu Glu Lys Arg Lys Ile Ile Gly Asp Thr Phe Val Lys Ile Ala
                         20                    25                    30
         Asn Glu Val Ile Gly Glu Met Asn Leu Lys Pro Glu Glu Val Phe Leu
                         35                    40                    45
         Ala Gln Gly Thr Leu Arg Pro Asp Leu Ile Glu Ser Ala Ser Leu Val
                 50                    55                    60
         Ala Ser Gly Lys Ala Glu Leu Ile Lys Thr His His Asn Asp Thr Glu
         65                    70                    75                    80
         Leu Ile Arg Lys Leu Arg Glu Glu Gly Lys Val Ile Glu Pro Leu Lys
                         85                    90                    95
         Asp Phe His Lys Asp Glu Val Arg Ile Leu Gly Arg Glu Leu Gly Leu
                         100                   105                   110
         Pro Glu Glu Leu Val Ser Arg His Pro Phe Pro Gly Pro Gly Leu Ala
                         115                   120                   125
         Ile Arg Val Ile Cys Ala Glu Glu Pro Tyr Ile Cys Lys Asp Phe Pro
         130                   135                   140
         Glu Thr Asn Asn Ile Leu Lys Ile Val Ala Asp Phe Ser Ala Ser Val
         145                   150                   155                   160
         Lys Lys Pro His Thr Leu Leu Gln Arg Val Lys Ala Cys Thr Thr Glu
                         165                   170                   175
         Glu Asp Gln Glu Lys Leu Met Gln Ile Thr Ser Leu His Ser Leu Asn
                         180                   185                   190
         Ala Phe Leu Leu Pro Ile Lys Thr Val Xaa Val Gln Gly Asp Cys Arg
                 195                   200                   205
         Ser Tyr Ser Tyr Arg Val Trp Asn Xaa Gln
         210                   215


         <210> 937
         <211> 246
         <212> PRT
         <213> Homo sapiens


         <400> 937
         Ala Ala Ala Pro Ala Leu Ala Pro Met Ala Leu Cys Asn Gly Asp Ser
         1               5                    10                    15
         Lys Leu Glu Asn Ala Gly Gly Asp Leu Lys Asp Gly His His His Tyr
                         20                    25                    30
         Glu Gly Ala Val Val Ile Leu Asp Ala Gly Ala Gln Tyr Gly Lys Val
                 35                    40                    45
         Ile Asp Arg Arg Val Arg Glu Leu Phe Val Gln Ser Glu Ile Phe Pro
         50                    55                    60
         Leu Glu Thr Pro Ala Phe Ala Ile Lys Glu Gln Gly Phe Arg Ala Ile
         65                    70                    75                    80
         Ile Ile Ser Gly Gly Pro Asn Ser Val Tyr Ala Glu Asp Ala Pro Trp
                         85                    90                    95
         Phe Asp Pro Ala Ile Phe Thr Ile Gly Lys Pro Val Leu Gly Ile Cys
                         100                   105                   110
         Tyr Gly Met Gln Met Met Asn Lys Val Phe Gly Gly Thr Val His Lys
                 115                   120                   125
```

```
        Lys Ser Val Arg Glu Asp Gly Val Phe Asn Ile Ser Val Asp Asn Thr
            130             135             140
        Cys Ser Leu Phe Arg Gly Leu Gln Lys Glu Glu Val Val Leu Leu Thr
            145             150             155             160
 5      His Gly Asp Ser Val Asp Lys Val Ala Asp Gly Phe Lys Val Val Ala
                    165             170             175
        Arg Ser Gly Asn Ile Val Ala Gly Ile Ala Asn Glu Ser Lys Lys Leu
                    180             185             190
        Tyr Gly Ala Gln Phe His Pro Glu Val Gly Leu Thr Glu Asn Gly Lys
10              195             200             205
        Val Ile Leu Lys Asn Phe Leu Tyr Asp Ile Thr Trp Met Gln Trp Asn
            210             215             220
        Leu His Arg Ala Xaa Thr Glu Lys Leu Glu Cys Xaa Xaa Glu Ile Lys
        225             230             235             240
15      Arg Glu Ser Xaa Ala Arg
                        245


            <210> 938
            <211> 145
20          <212> PRT
            <213> Homo sapiens


            <400> 938
        Thr Cys Ile Ile His Thr Asn Val Glu Asn Ser Ile Phe Ser Asp Thr
25      1               5               10              15
        Phe Phe Val His Ser Thr Ser Lys Tyr Leu Ile His His Leu His Thr
                    20              25              30
        Ile Ala Asn Ser Lys Asn Arg Leu Ala Asn Ser Glu Tyr Cys Trp Ile
                    35              40              45
30      Lys Pro Gly Ser Ile Phe Ser Ile His Arg Ile Arg Ser Ser Arg Asp
            50              55              60
        Asp Asn Ser Thr Glu Ser Leu Phe Leu Tyr Ser Lys Cys Trp Cys Phe
        65              70              75              80
        Gln Gly Glu Asn Phe Arg Leu His Glu Gln Phe Pro His Ser Ser Val
35                      85              90              95
        Tyr Asp Phe Pro Val Leu Ser Thr Ser Ile Gln Asn Asp Asn Ser Ser
                    100             105             110
        Phe Ile Val Val Val Ala Ile Leu Lys Val Ser Ser Ser Ile Leu Gln
                    115             120             125
40      Leu Gly Val Ser Val Ala Gln Ser His Arg Gly Gln Gly Arg Ser Arg
            130             135             140
        Gly
        145


45          <210> 939
            <211> 220
            <212> PRT
            <213> Homo sapiens


50          <400> 939
        Thr Met Glu Ala Lys Asp Gln Lys Lys His Arg Lys Lys Asn Ser Gly
        1               5               10              15
        Pro Lys Ala Ala Lys Lys Lys Lys Arg Leu Leu Gln Asp Leu Gln Leu
                    20              25              30
55      Gly Asp Glu Glu Asp Ala Arg Lys Arg Asn Pro Lys Ala Phe Ala Val
                    35              40              45
        Gln Ser Ala Val Arg Met Ala Arg Ser Phe His Arg Thr Gln Asp Leu
            50              55              60
        Lys Thr Lys Lys His His Ile Pro Val Val Asp Arg Thr Pro Leu Glu
60      65              70              75              80
        Pro Pro Pro Ile Val Val Val Met Gly Pro Pro Lys Val Gly Lys
                    85              90              95
        Ser Thr Leu Ile Gln Cys Leu Ile Arg Asn Phe Thr Arg Gln Lys Leu
```

253

```
                        100                    105                    110
          Thr Glu Ile Arg Gly Pro Val Thr Ile Val Ser Gly Lys Lys Arg Arg
                   115                    120                    125
          Leu Thr Ile Ile Glu Cys Gly Cys Asp Ile Asn Met Met Ile Asp Leu
  5            130                    135                    140
          Ala Lys Val Ala Asp Leu Val Leu Met Leu Ile Asp Ala Ser Phe Gly
          145                    150                    155                160
          Phe Glu Met Glu Thr Phe Glu Phe Leu Asn Ile Cys Gln Val His Gly
                             165                    170                    175
 10       Phe Pro Lys Ile Met Gly Val Leu Thr His Leu Asp Phe Phe Lys His
                   180                    185                    190
          Asn Lys Pro Thr Gly Gly Arg Gln Arg Ser Arg Leu Lys His Arg Phe
                   195                    200                    205
          Trp Thr Xaa Lys Phe Thr Pro Gly Ala Gln Ala Val
 15       210                    215                    220


               <210> 940
               <211> 156
               <212> PRT
 20            <213> Homo sapiens


               <400> 940
          Asn Cys Leu Pro Pro Gln Ile Gln Gly Gln Ser Leu Gln Ser Lys Gly
           1                5                    10                    15
 25       Ser Leu Gln Leu Ala Leu Ser Pro Leu Gln Thr Gly Leu Leu Val Ser
                   20                    25                    30
          Ser Phe Leu Leu Pro Leu Asn Ser Glu Glu Leu Leu Pro Glu Val Leu
                   35                    40                    45
          Leu Pro Leu Gln Leu Leu Leu Leu Leu Leu Leu Gly Ser Glu Val
 30        50                    55                    60
          Leu Phe Ile Val Gln Val Pro Leu Leu Leu Gly Leu Leu His Leu Leu
          65                    70                    75                    80
          Thr Met His Arg Thr Gln Ser Ile Gln Gln Cys Lys Asp Leu Ser Phe
                             85                    90                    95
 35       Met Arg Leu Ala Tyr Asp Gly Arg Ser Pro Pro Val Leu Trp His Leu
                   100                    105                    110
          Ala Cys Leu Cys Leu Gly Leu Gly Leu Val Leu Lys Trp Gln Gly Leu
                   115                    120                    125
          Leu Gln Xaa Phe Trp Asn Val Gln Xaa Ile Lys Met Phe Leu Leu Pro
 40        130                    135                    140
          Gln Asp Gly Leu Tyr Xaa Lys Val Leu Gly Xaa Leu
          145                    150                    155


               <210> 941
 45            <211> 132
               <212> PRT
               <213> Homo sapiens


               <400> 941
 50       Gly Gln Lys Glu Xaa Phe Leu Ile Ser Xaa Ala Xaa Ser Gln Asn Xaa
           1                5                    10                    15
          Leu Pro Xaa Gly Xaa Ser Xaa Phe Lys Xaa Gln Ala Gln Ala Pro Asn
                   20                    25                    30
          Gln Lys Ala Gly Lys Val Pro Lys Gly Gln Ala Glu Pro Gly Xaa His
 55            35                    40                    45
          Thr Arg Ala Phe Met Lys Xaa Arg Ser Leu Ala Leu Leu Asp Ala Leu
               50                    55                    60
          Ser Thr Val His Ser Gln Lys Met Lys Lys Ala Lys Glu Gln Arg Xaa
          65                    70                    75                    80
 60       Leu Xaa Asn Lys Glu Pro Phe Arg Ala Lys Gln Lys Glu Glu Glu Glu
                        85                    90                    95
          Lys Leu Lys Arg Gln Lys Asp Leu Arg Lys Lys Leu Phe Arg Ile Gln
                   100                    105                    110
```

```
Gly Gln Lys Glu Arg Arg Asn Gln Lys Ser Ser Leu Lys Gly Ala Glu
        115                     120                 125
Gly Gln Xaa Gln
        130

        <210> 942
        <211> 142
        <212> PRT
        <213> Homo sapiens

        <400> 942
Asn Cys Leu Pro Pro Xaa Ile Gln Gly Gln Ser Leu Gln Ser Lys Gly
1               5                   10                  15
Ser Leu Xaa Leu Ala Leu Ser Pro Leu Gln Thr Gly Leu Leu Val Ser
        20                  25                  30
Ser Phe Leu Leu Pro Leu Asn Ser Glu Glu Leu Leu Pro Glu Val Leu
        35                  40                  45
Leu Pro Leu Gln Leu Leu Leu Leu Leu Leu Leu Gly Ser Glu Gly
        50                  55                  60
Leu Phe Ile Xaa Gln Xaa Pro Leu Leu Leu Gly Leu Leu His Leu Leu
65                  70                  75                  80
Thr Met His Arg Thr Gln Ser Ile Gln Gln Cys Lys Gly Ser Xaa Phe
                85                  90                  95
His Glu Gly Ser Arg Met Xaa Ala Gly Leu Arg Leu Ser Phe Trp His
            100                 105                 110
Leu Ala Cys Leu Leu Val Trp Gly Leu Gly Leu Xaa Leu Lys Xaa Gly
        115                 120                 125
Xaa Ala Xaa Trp Gln Xaa Val Leu Gly Xaa Gly Xaa Gly Asn
        130                 135                 140

        <210> 943
        <211> 127
        <212> PRT
        <213> Homo sapiens

        <400> 943
Ala Lys Arg Asn Leu Phe Asn Ser Leu Xaa His Ser Gln Xaa Xaa Cys
1               5                   10                  15
Xaa Arg Xaa Xaa His Xaa Arg Pro Ser Pro Ser Pro Ser Lys Gly Arg
        20                  25                  30
Gln Gly Ala Lys Asp Arg Arg Arg Pro Ala Val Ile Arg Glu Pro His
        35                  40                  45
Glu Arg Lys Ile Leu Ala Leu Leu Asp Ala Leu Ser Thr Val His Ser
        50                  55                  60
Gln Lys Met Lys Lys Ala Lys Glu Gln Arg His Leu His Asn Lys Glu
65                  70                  75                  80
His Phe Arg Ala Lys Gln Lys Glu Glu Glu Glu Lys Leu Lys Arg Gln
                85                  90                  95
Lys Asp Leu Arg Lys Lys Leu Phe Arg Ile Gln Gly Gln Lys Glu Arg
            100                 105                 110
Arg Asn Gln Lys Ser Ser Leu Lys Gly Ala Glu Gly Gln Leu Gln
        115                 120                 125

        <210> 944
        <211> 159
        <212> PRT
        <213> Homo sapiens

        <400> 944
Asn Cys Leu Pro Pro Gln Ile Gln Gly Gln Ser Leu Gln Ser Lys Gly
1               5                   10                  15
Ser Leu Gln Leu Ala Leu Ser Pro Leu Gln Thr Gly Leu Leu Val Ser
        20                  25                  30
```

355

```
     Ser Phe Leu Leu Pro Leu Asn Ser Glu Glu Leu Leu Pro Glu Val Leu
             35                  40                  45
     Leu Pro Leu Gln Leu Leu Leu Leu Leu Leu Leu Gly Ser Glu Val
         50                  55                  60
  5  Leu Phe Ile Val Gln Val Pro Leu Leu Leu Gly Leu Leu His Leu Leu
     65                  70                  75                  80
     Thr Met His Arg Thr Gln Ser Ile Gln Gln Cys Lys Asp Leu Ser Phe
                 85                  90                  95
     Met Arg Leu Ala Tyr Asp Gly Arg Ser Pro Pro Val Phe Gly Thr Leu
             100                 105             110
 10  Pro Ala Phe Ala Trp Ala Trp Ala Trp Ser Xaa Met Xaa Xaa Pro Xaa
             115                 120                 125
     Ala Xaa Xaa Leu Gly Met Xaa Lys Gly Ile Lys Lys Val Ser Phe Gly
             130                 135                 140
 15  Leu Arg Ile Gly Leu Phe Lys Xaa Val Leu Gly Arg Leu Leu Xaa
     145                 150                 155

         <210> 945
         <211> 250
 20      <212> PRT
         <213> Homo sapiens

         <400> 945
     Ile Asn Tyr Val Leu Val Val Tyr Gly Leu Ala Ile Ser Leu Leu Gly
 25  1                   5                   10                  15
     Ile Gly Gln Pro Glu Glu Leu Ser Glu Ala Glu Asn Gln Phe Lys Arg
                 20                  25                  30
     Ile Ile Glu His Tyr Pro Ser Glu Gly Leu Asp Cys Leu Ala Tyr Cys
             35                  40                  45
 30  Gly Ile Gly Lys Val Tyr Leu Lys Lys Asn Arg Phe Leu Glu Ala Leu
             50                  55                  60
     Asn His Phe Glu Lys Ala Arg Thr Leu Ile Tyr Arg Leu Pro Gly Val
     65                  70                  75                  80
     Leu Thr Trp Pro Thr Ser Asn Val Ile Ile Glu Glu Ser Gln Pro Gln
 35                  85                  90                  95
     Lys Ile Lys Met Leu Leu Glu Lys Phe Val Glu Glu Cys Lys Phe Pro
                 100                 105             110
     Pro Val Pro Asp Ala Ile Cys Cys Tyr Gln Lys Cys His Gly Tyr Ser
             115                 120                 125
 40  Lys Ile Gln Ile Tyr Ile Thr Asp Pro Asp Phe Lys Gly Phe Ile Arg
             130                 135             140
     Ile Ser Cys Cys Gln Tyr Cys Lys Ile Glu Phe His Met Asn Cys Trp
     145                 150                 155             160
     Lys Lys Leu Lys Thr Thr Thr Phe Asn Asp Lys Ile Asp Lys Asp Phe
 45                  165                 170                 175
     Leu Gln Gly Ile Cys Leu Thr Pro Asp Cys Glu Xaa Val Ile Ser Lys
             180                 185             190
     Ile Ile Ile Phe Ser Ser Gly Gly Glu Val Lys Cys Glu Phe Glu His
             195                 200                 205
 50  Lys Val Ile Lys Glu Lys Val Xaa Ser Arg Pro Ile Leu Lys Gln Lys
     210                 215                 220
     Cys Ser Ser Leu Xaa Lys Leu Arg Leu Glu Glu Asp Lys Lys Leu Glu
     225                 230                 235             240
     Glu Lys Gly Xaa Gln Lys Lys Glu Pro Lys
 55                  245                 250

         <210> 946
         <211> 128
         <212> PRT
 60      <213> Homo sapiens

         <400> 946
     Arg Ala Ser Asn Ser Ser Thr Ser Cys Arg Arg Trp Ser Gly Thr Ala
```

```
      1                   5                        10                      15
      Asn Gly Pro Ala Xaa Ser Glu Phe Arg Leu Leu Trp Ser Ser Leu Glu
                      20              25              30
      Val Met Ile Ser Leu Phe Glu Val Thr Glu Val Val Pro Asp Pro Thr
                      35              40              45
      Asn Ile Gly Phe Glu Ser Phe Gly Phe Phe Phe Leu Leu Leu Xaa Phe
                  50              55              60
      Thr Leu Val Glu Leu Asn Gly Ala Ser Pro Leu Ser Cys Phe Leu Asn
      65                  70              75                  80
      Thr Val Gln Ala Gly Val His Tyr Ile Lys Arg Ile His Leu Lys His
                      85              90              95
      Tyr Ala Met Leu Gly Asn Leu Gly Phe Trp Gly Leu Leu Xaa Xaa Xaa
                      100             105             110
      Ile Leu Asn Lys Pro Gly Leu Ser Phe Lys Xaa Lys Pro Gly Leu Pro
                  115             120             125
```

```
           <210> 947
           <211> 127
           <212> PRT
           <213> Homo sapiens


           <400> 947
      Ala Val Met Gln Pro Ser Ser Val Gln Tyr Ser Cys Gln Ser Gln Gln
      1                   5                        10                      15
      Asn Glu Gly Ile Pro Arg Glu Lys Val Leu Asn Leu Leu Leu Phe Leu
                      20               25              30
      Val Ser Val Glu Phe Leu Leu Gly Lys Thr His Ile Leu Gln Arg Thr
                      35              40              45
      Ser Cys Tyr Ser Cys Pro Arg Asp His Val Pro Pro Lys Thr Glu Arg
           50              55                  60
      Ser Asn His Ile Glu Leu Asn Ile Phe Val Leu Gly Ser Cys Pro Ile
      65                  70                  75                  80
      Ala Ser Tyr Cys Gly Gln His Ile Arg Tyr Cys Val Gly His Arg Glu
                      85              90              95
      Leu Arg Ile Leu Leu His Leu Ala Glu Asp Gly Gln Ala Leu Gln Met
                      100             105             110
      Gly Leu Xaa Asn Leu Asn Phe Asp Cys Tyr Gly Leu His Leu Lys
                  115             120             125
```

```
           <210> 948
           <211> 183
           <212> PRT
           <213> Homo sapiens


           <400> 948
      Trp Thr Pro Ala Cys Thr Val Leu Arg Lys Gln Asp Ser Gly Glu Ala
      1                   5                        10                      15
      Pro Phe Ser Ser Thr Lys Val Lys Xaa Lys Ser Lys Lys Lys Lys Pro
                      20              25              30
      Lys Asp Ser Lys Pro Met Leu Val Gly Ser Gly Thr Thr Ser Val Thr
                      35              40              45
      Ser Asn Asn Glu Ile Ile Thr Ser Ser Glu Asp His Ser Asn Arg Asn
           50              55                  60
      Ser Asp Xaa Ala Gly Pro Phe Ala Val Pro Asp His Leu Arg Gln Asp
      65                  70              75                  80
      Val Glu Glu Phe Glu Ala Leu Tyr Asp Gln His Ser Asn Glu Tyr Val
                      85              90              95
      Val Arg Asn Lys Lys Leu Trp Asp Met Asn Pro Lys Gln Lys Cys Ser
                      100             105             110
      Thr Leu Tyr Asp Tyr Phe Ser Gln Phe Leu Glu Glu His Gly Pro Leu
                  115             120             125
      Asp Met Ser Asn Lys Met Phe Ser Ala Glu Tyr Glu Phe Phe Pro Glu
                  130             135             140
```

357

```
Glu Thr Arg Gln Ile Leu Glu Lys Ala Gly Gly Leu Lys Pro Phe Leu
145                 150                 155                 160
Leu Gly Cys Pro Arg Phe Val Val Ile Asp Asn Cys Ile Ala Leu Lys
                165                 170                 175
Lys Val Ala Ser Arg Leu Lys
            180


        <210> 949
        <211> 219
        <212> PRT
        <213> Homo sapiens


        <400> 949
Leu Leu Asn Gly Leu Asp Pro Gln Lys Ile Lys Gln Leu Asn Leu Ala
1               5                   10                  15
Met Ile Asn Tyr Val Leu Val Val Tyr Gly Leu Ala Ile Ser Leu Leu
            20                  25                  30
Gly Ile Gly Gln Pro Glu Glu Leu Ser Glu Ala Glu Asn Gln Phe Lys
        35                  40                  45
Arg Ile Ile Glu His Tyr Pro Ser Glu Gly Leu Asp Cys Leu Ala Tyr
    50                  55                  60
Cys Gly Ile Gly Lys Val Tyr Leu Lys Lys Asn Arg Phe Leu Glu Ala
65                  70                  75                  80
Leu Asn His Phe Glu Lys Ala Arg Thr Leu Ile Tyr Arg Leu Pro Gly
                85                  90                  95
Val Leu Thr Trp Pro Thr Ser Asn Val Ile Ile Glu Glu Ser Gln Pro
            100                 105                 110
Gln Lys Ile Lys Met Leu Leu Glu Lys Phe Val Glu Glu Cys Lys Phe
        115                 120                 125
Pro Pro Val Pro Asp Ala Ile Cys Cys Tyr Gln Lys Cys His Gly Tyr
    130                 135                 140
Ser Lys Ile Gln Ile Tyr Ile Thr Asp Pro Asp Phe Lys Gly Phe Ile
145                 150                 155                 160
Arg Ile Ser Cys Cys Gln Tyr Cys Lys Ile Glu Phe His Met Asn Cys
                165                 170                 175
Trp Lys Lys Leu Lys Thr Thr Thr Phe Asn Asp Lys Ile Asp Lys Gly
            180                 185                 190
Phe Ser Thr Arg Glu Tyr Val Leu Pro Leu Thr Val Xaa Gly Ser Phe
            195                 200                 205
Leu Xaa Ile Ile Ile Phe Ser Ser Gly Trp Val
210                 215


        <210> 950
        <211> 116
        <212> PRT
        <213> Homo sapiens


        <400> 950
Arg Ala Ser Asn Ser Ser Thr Ser Cys Arg Arg Trp Ser Gly Thr Ala
1               5                   10                  15
Asn Gly Pro Ala Glu Ser Glu Phe Arg Leu Leu Trp Ser Ser Leu Glu
            20                  25                  30
Val Met Ile Ser Leu Phe Glu Val Thr Glu Val Val Pro Asp Pro Thr
            35                  40                  45
Asn Ile Gly Phe Glu Ser Phe Gly Phe Phe Phe Leu Leu Leu Phe Phe
        50                  55                  60
Thr Leu Val Glu Leu Asn Xaa Ala Ser Pro Leu Ser Cys Phe Leu Asn
65                  70                  75                  80
Thr Val Gln Arg Val Pro Leu Tyr Gln Arg Ile His Leu Lys His Tyr
                85                  90                  95
Ala Met Leu Gly Asn Leu Ala Leu Gly Ser Ser Ser Thr Ile Leu Asn
            100                 105                 110
Asn Gly Phe Leu
```

358

115

<210> 951
<211> 127
<212> PRT
<213> Homo sapiens

<400> 951

Ala	Val	Met	Gln	Pro	Ser	Ser	Val	Gln	Tyr	Ser	Cys	Gln	Ser	Gln	Gln
1				5					10					15	
Asn	Glu	Gly	Ile	Pro	Arg	Glu	Lys	Val	Leu	Asn	Leu	Leu	Leu	Phe	Leu
			20				25					30			
Val	Ser	Val	Glu	Phe	Leu	Leu	Gly	Lys	Thr	His	Ile	Leu	Gln	Arg	Thr
		35					40					45			
Ser	Cys	Tyr	Ser	Cys	Pro	Arg	Asp	His	Val	Pro	Pro	Lys	Thr	Glu	Arg
	50					55					60				
Ser	Asn	His	Ile	Glu	Leu	Asn	Ile	Phe	Val	Leu	Gly	Ser	Cys	Pro	Ile
65					70					75					80
Ala	Ser	Tyr	Cys	Gly	Gln	His	Ile	Arg	Tyr	Cys	Val	Gly	His	Arg	Glu
				85					90					95	
Leu	Arg	Ile	Leu	Leu	His	Leu	Ala	Glu	Asp	Gly	Gln	Ala	Leu	Gln	Met
			100					105					110		
Gly	Leu	Gln	Asn	Leu	Asn	Phe	Asp	Cys	Tyr	Gly	Leu	His	Leu	Lys	
			115					120					125		

<210> 952
<211> 184
<212> PRT
<213> Homo sapiens

<400> 952

Tyr	Asn	Gly	Thr	Arg	Cys	Thr	Val	Leu	Arg	Lys	Gln	Asp	Ser	Gly	Glu
1				5					10					15	
Xaa	Pro	Phe	Ser	Ser	Thr	Lys	Val	Lys	Asn	Lys	Ser	Lys	Lys	Lys	Lys
			20				25					30			
Pro	Lys	Asp	Ser	Lys	Pro	Met	Leu	Val	Gly	Ser	Gly	Thr	Thr	Ser	Val
		35					40					45			
Thr	Ser	Asn	Asn	Glu	Ile	Ile	Thr	Ser	Ser	Glu	Asp	His	Ser	Asn	Arg
	50					55					60				
Asn	Ser	Asp	Ser	Ala	Gly	Pro	Phe	Ala	Val	Pro	Asp	His	Leu	Arg	Gln
65					70					75					80
Asp	Val	Glu	Glu	Phe	Glu	Ala	Leu	Tyr	Asp	Gln	His	Ser	Asn	Glu	Tyr
				85					90					95	
Val	Val	Arg	Asn	Lys	Lys	Leu	Trp	Asp	Met	Asn	Pro	Lys	Gln	Lys	Cys
			100					105					110		
Ser	Thr	Leu	Tyr	Asp	Tyr	Phe	Ser	Gln	Phe	Leu	Glu	Glu	His	Gly	Pro
			115					120					125		
Leu	Asp	Met	Ser	Asn	Lys	Met	Phe	Ser	Ala	Glu	Tyr	Glu	Phe	Phe	Pro
			130					135					140		
Glu	Glu	Thr	Arg	Gln	Ile	Leu	Glu	Lys	Ala	Gly	Gly	Leu	Lys	Pro	Phe
145					150					155					160
Leu	Leu	Gly	Cys	Pro	Arg	Phe	Val	Val	Ile	Asp	Asn	Cys	Ile	Ala	Leu
			165					170					175		
Lys	Lys	Val	Ala	Ser	Arg	Leu	Lys								
			180												

<210> 953
<211> 185
<212> PRT
<213> Homo sapiens

<400> 953

Tyr	Asn	Xaa	Xaa	Pro	Leu	Val	Leu	Val	Leu	Arg	Lys	Gln	Asp	Ser	Gly

```
          1                   5                   10                  15
          Glu Xaa Pro Phe Ser Ser Thr Lys Val Lys Asn Lys Ser Lys Lys Lys
                      20                  25                  30
          Lys Pro Lys Asp Ser Lys Pro Met Leu Val Gly Ser Gly Thr Thr Ser
   5                  35                  40                  45
          Val Thr Ser Asn Asn Glu Ile Ile Thr Ser Ser Glu Asp His Ser Asn
                      50                  55                  60
          Arg Asn Ser Asp Ser Ala Gly Pro Phe Ala Val Pro Asp His Leu Arg
          65                  70                  75                  80
  10      Gln Asp Val Glu Glu Phe Glu Ala Leu Tyr Asp Gln His Ser Asn Glu
                              85                  90                  95
          Tyr Val Val Arg Asn Lys Lys Leu Trp Asp Met Asn Pro Lys Gln Lys
                      100                 105                 110
          Cys Ser Thr Leu Tyr Asp Tyr Phe Ser Gln Phe Leu Glu Glu His Gly
  15              115                 120                 125
          Pro Leu Asp Met Ser Asn Lys Met Phe Ser Ala Glu Tyr Glu Phe Phe
                  130                 135                 140
          Pro Glu Glu Thr Arg Gln Ile Leu Glu Lys Ala Gly Gly Leu Lys Pro
          145                 150                 155                 160
  20      Phe Leu Leu Gly Cys Pro Arg Phe Val Val Ile Asp Asn Cys Ile Ala
                      165                 170                 175
          Leu Lys Lys Val Ala Ser Arg Leu Lys
                      180                 185


  25              <210> 954
                  <211> 125
                  <212> PRT
                  <213> Homo sapiens


  30              <400> 954
          Met Gln Pro Ser Ser Val Gln Tyr Ser Cys Gln Ser Gln Gln Asn Glu
          1                   5                   10                  15
          Gly Ile Pro Arg Glu Lys Val Leu Asn Leu Leu Leu Phe Leu Val Ser
                      20                  25                  30
  35      Val Glu Phe Leu Leu Gly Lys Thr His Ile Leu Gln Arg Thr Ser Cys
                      35                  40                  45
          Tyr Ser Cys Pro Arg Asp His Val Pro Pro Lys Thr Glu Arg Ser Asn
                  50                  55                  60
          His Ile Glu Leu Asn Ile Phe Val Leu Gly Ser Cys Pro Ile Ala Ser
  40      65                  70                  75                  80
          Tyr Cys Gly Gln His Ile Arg Tyr Cys Val Gly His Arg Glu Leu Arg
                          85                  90                  95
          Ile Leu Leu His Leu Ala Glu Asp Gly Gln Ala Leu Gln Met Gly Leu
                      100                 105                 110
  45      Gln Asn Leu Asn Phe Asp Cys Tyr Gly Leu His Leu Lys
                  115                 120                 125


                  <210> 955
                  <211> 212
  50              <212> PRT
                  <213> Homo sapiens


                  <400> 955
          Glu Asp Glu Lys Arg Arg Arg Lys Glu Glu Glu Glu Arg Arg Met Lys
  55      1                   5                   10                  15
          Leu Glu Met Glu Ala Lys Arg Lys Gln Glu Glu Glu Arg Lys Lys
                      20                  25                  30
          Arg Glu Asp Asp Glu Lys Arg Ile Gln Ala Glu Val Glu Ala Gln Leu
                  35                  40                  45
  60      Ala Arg Gln Lys Glu Glu Glu Ser Gln Gln Gln Ala Val Leu Glu Gln
              50                  55                  60
          Glu Arg Arg Asp Arg Glu Leu Ala Leu Arg Ile Ala Gln Ser Glu Ala
          65                  70                  75                  80
```

360

```
     Glu Leu Ile Ser Asp Glu Ala Gln Ala Asp Leu Ala Leu Arg Ser Leu
                     85                  90                  95
     Asp Ser Tyr Pro Val Thr Ser Lys Asn Asp Gly Thr Arg Pro Lys Met
                     100                 105                 110
  5  Thr Pro Glu Gln Met Ala Lys Glu Met Ser Glu Phe Leu Ser Arg Gly
             115                 120                 125
     Pro Ala Val Leu Ala Thr Lys Ala Ala Ala Gly Thr Lys Lys Tyr Asp
             130                 135                 140
     Leu Ser Lys Trp Lys Tyr Ala Glu Leu Arg Asp Thr Ile Asn Thr Ser
 10  145             150                 155                 160
     Cys Asp Ile Glu Leu Leu Ala Ala Cys Arg Glu Glu Phe His Arg Arg
                     165                 170                 175
     Leu Lys Val Tyr His Ala Trp Lys Ser Lys Asn Lys Lys Arg Asn Leu
                     180                 185                 190
 15  Glu Gln Ser Asn Val Leu Gln Ser Leu Leu Leu Ile Met Leu Ser Lys
                 195                 200                 205
     Thr Gln Gln Leu
             210


 20          <210> 956
             <211> 121
             <212> PRT
             <213> Homo sapiens


 25          <400> 956
     His Phe Phe Gly His Leu Phe Arg Cys His Phe Gly Ser Cys Ser Ile
     1               5                   10                  15
     Ile Phe Arg Ser Tyr Arg Ile Gly Ile Gln Ala Pro Gln Arg Gln Val
                     20                  25                  30
 30  Gly Leu Gly Leu Ile Thr Asp Glu Leu Gly Phe Thr Leu Gly Asn Pro
                 35                  40                  45
     Gln Gly Gln Leu Pro Val Pro Ala Leu Leu Leu Gln Asn Cys Leu Leu
                 50                  55                  60
     Leu Gly Phe Leu Leu Leu Leu Ser Gly Gln Leu Cys Leu His Phe Ser
 35  65                  70                  75                  80
     Leu Asn Ala Phe Phe Ile Ile Phe Pro Phe Leu Ser Leu Phe Phe Phe
                     85                  90                  95
     Leu Phe Ser Leu Cys Phe His Leu Lys Phe His Pro Pro Phe Leu Leu
                     100                 105                 110
 40  Phe Leu Ser Ser Thr Phe Phe Val Phe
             115                 120


             <210> 957
             <211> 221
 45          <212> PRT
             <213> Homo sapiens


             <400> 957
     Glu Arg Lys Arg Arg Glu Glu Asp Glu Lys Arg Arg Arg Lys Glu Glu
 50  1               5                   10                  15
     Glu Glu Arg Arg Met Lys Leu Glu Met Glu Ala Lys Arg Lys Gln Glu
                     20                  25                  30
     Glu Glu Glu Arg Lys Lys Arg Glu Asp Asp Glu Lys Arg Ile Gln Ala
                 35                  40                  45
 55  Glu Val Glu Ala Gln Leu Ala Arg Gln Lys Glu Glu Glu Ser Gln Gln
             50                  55                  60
     Gln Ala Val Leu Glu Gln Glu Arg Arg Asp Arg Glu Leu Ala Leu Arg
     65                  70                  75                  80
     Ile Ala Gln Ser Glu Ala Glu Leu Ile Ser Asp Glu Ala Gln Ala Asp
 60                  85                  90                  95
     Leu Ala Leu Arg Arg Gly Pro Ala Val Leu Ala Thr Lys Ala Ala Ala
                     100                 105                 110
     Gly Thr Lys Lys Tyr Asp Leu Ser Lys Trp Lys Tyr Ala Glu Leu Arg
```

```
              115                    120                    125
     Asp Thr Ile Asn Thr Ser Cys Asp Ile Glu Leu Leu Ala Ala Cys Arg
              130                    135                    140
     Glu Glu Phe His Arg Arg Leu Lys Val Tyr His Ala Trp Lys Ser Lys
  5           145                    150                    155          160
     Asn Lys Lys Arg Asn Thr Glu Thr Glu Gln Arg Ala Pro Lys Ser Val
                       165                    170                    175
     Thr Asp Tyr Ala Gln Gln Asn Pro Ala Ala Gln Ile Pro Ala Arg Gln
                       180                    185                    190
 10  Arg Glu Ile Glu Met Asn Pro Thr Ala Thr Leu Leu Ser His Xaa Ile
              195                    200                    205
     His Ser Ala Leu Pro Asp Gln Tyr Lys Arg Pro Ser Glu
              210                    215                    220
```

```
 15           <210> 958
              <211> 93
              <212> PRT
              <213> Homo sapiens

 20           <400> 958
     Phe Ser Lys Cys Ser Ala Ser Asn Ile Phe Leu Phe Lys Lys Phe Leu
       1               5                   10                  15
     Val Ser Phe Leu Ala Phe Glu Val Leu Val Ile Val Asp Leu Phe His
                   20                  25                  30
 25  Lys Leu Cys Asn Ser Glu Ile Leu Val Phe Ser Lys Cys Leu Phe Tyr
                   35                  40                  45
     Ile Thr Asp Asn Phe Lys Met Phe Ser Leu Cys Ala Val Ser Ile Asp
               50                  55                  60
     Ser Asn Val Ser Ser Phe Lys Pro Asn Ile Tyr Asp Phe His Ile Trp
 30  65                  70                  75                  80
     Asn Leu Lys Thr Lys Ile His Gln Gly Val Met Leu Thr
                       85                  90
```

```
              <210> 959
 35           <211> 93
              <212> PRT
              <213> Homo sapiens

              <400> 959
 40  Phe Ser Lys Cys Ser Ala Ser Asn Ile Phe Leu Phe Lys Lys Phe Leu
       1               5                   10                  15
     Val Ser Phe Leu Ala Phe Glu Val Leu Val Ile Val Asp Leu Phe His
                   20                  25                  30
     Lys Leu Cys Asn Ser Glu Ile Leu Val Phe Ser Lys Cys Leu Phe Tyr
 45                35                  40                  45
     Ile Thr Asp Asn Phe Lys Met Phe Ser Leu Cys Ala Val Ser Ile Asp
               50                  55                  60
     Ser Asn Val Ser Ser Phe Lys Pro Asn Ile Tyr Asp Phe His Ile Trp
     65                  70                  75                  80
 50  Asn Leu Lys Thr Lys Ile His Gln Gly Val Met Leu Thr
                       85                  90
```

```
              <210> 960
              <211> 193
 55           <212> PRT
              <213> Homo sapiens

              <400> 960
     Trp Trp Asn His Phe Arg Ser Lys Asn Val Arg Arg Ile Asn Leu Gln
 60    1               5                   10                  15
     Lys Asn Ile Ile Gly Ser Ser Pro Val Ala Asp Phe Ser Ala Ile Lys
                   20                  25                  30
     Glu Leu Asp Thr Leu Asn Asn Glu Ile Val Asp Leu Gln Arg Glu Lys
```

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```
                 35                    40                    45
      Asn Asn Val Glu Gln Asp Leu Lys Glu Lys Glu Asp Thr Ile Lys Gln
         50                    55                    60
5     65 Arg Thr Ser Glu Val Gln Asp Leu Gln Asp Glu Val Gln Arg Glu Asn
                                  70                    75              80
      Thr Asn Leu Gln Lys Leu Gln Ala Gln Lys Gln Gln Val Gln Glu Leu
                 85                    90                    95
      Leu Asp Glu Leu Asp Glu Gln Lys Ala Gln Leu Glu Glu Gln Leu Lys
                 100                   105                   110
10    Glu Val Arg Lys Lys Cys Ala Glu Glu Ala Gln Leu Ile Ser Ser Leu
                 115                   120                   125
      Lys Ala Glu Leu Thr Ser Gln Glu Ser Gln Ile Ser Thr Tyr Glu Glu
                 130                   135                   140
      Glu Leu Ala Lys Ala Arg Glu Glu Leu Ser Arg Leu Gln Gln Glu Thr
15    145                   150                   155                   160
      Gln Asn Trp Arg Xaa Ser Val Lys Ser Gly Lys Ala Gln Phe Xaa Thr
                     165                   170                   175
      Xaa Leu Ala Ala Pro Thr Arg Phe Thr Thr Xaa Lys Leu Val Gln Cys
                 180                   185                   190
20    Gln
```

```
      <210> 961
      <211> 82
25    <212> PRT
      <213> Homo sapiens

      <400> 961
      Leu Thr Tyr Arg Gly Lys Arg Ile Met Trp Asn Arg Thr Leu Arg Arg
30    1               5                   10                  15
      Arg Lys Ile Leu Leu Asn Arg Gly Gln Val Arg Phe Arg Ile Phe Lys
                 20                    25                    30
      Met Lys Phe Lys Gly Arg Ile Leu Ile Cys Lys Asn Tyr Arg Pro Arg
                 35                    40                    45
35    Asn Ser Arg Tyr Arg Asn Ser Leu Met Asn Trp Met Ser Arg Lys Pro
                 50                    55                    60
      Ser Trp Arg Ser Asn Ser Arg Lys Ser Glu Arg Asn Val Leu Arg Arg
      65                    70                    75                  80
      Pro Asn
40
```

```
      <210> 962
      <211> 219
      <212> PRT
45    <213> Homo sapiens

      <400> 962
      Ala Ala Gln Leu Ser Leu Thr Gln Leu Ser Ser Gly Asn Pro Val Tyr
      1               5                   10                  15
50    Glu Lys Tyr Tyr Arg Gln Val Asp Thr Gly Asn Thr Gly Arg Val Leu
                 20                    25                    30
      Ala Ser Asp Ala Ala Ala Phe Leu Lys Lys Ser Gly Leu Pro Asp Leu
                 35                    40                    45
      Ile Leu Gly Lys Ile Trp Asp Leu Ala Asp Thr Asp Gly Lys Gly Ile
55    50                    55                    60
      Leu Asn Lys Gln Glu Phe Phe Val Ala Leu Arg Leu Val Ala Cys Ala
      65                    70                    75                  80
      Gln Asn Gly Leu Glu Val Ser Leu Ser Ser Leu Asn Leu Ala Val Pro
                 85                    90                    95
60    Pro Pro Arg Phe His Asp Thr Ser Ser Pro Leu Leu Ile Ser Gly Thr
                 100                   105                   110
      Ser Ala Ala Glu Leu Pro Trp Ala Val Lys Pro Glu Asp Lys Ala Lys
                 115                   120                   125
```

```
Tyr Asp Ala Ile Phe Asp Ser Leu Ser Pro Val Asn Gly Phe Leu Ser
    130                 135             140
Gly Asp Lys Val Lys Pro Val Leu Leu Asn Ser Lys Leu Pro Val Asp
145                 150                 155                 160
Ile Leu Gly Arg Val Trp Glu Leu Ser Asp Ile Asp His Asp Gly Met
                165             170                 175
Leu Asp Arg Xaa Xaa Phe Ala Val Ala Met Phe Leu Val Tyr Xaa Ala
            180             185                 190
Thr Gly Lys Lys Asn Leu Cys Gln Cys Pro Cys Xaa Gln Pro Trp Val
        195             200                 205
Pro Pro Ile Leu Arg Lys Lys Thr Xaa Val Gly
    210             215
```

```
        <210> 963
        <211> 109
        <212> PRT
        <213> Homo sapiens


        <400> 963
Leu Ala Lys Asp Tyr Trp Tyr His Glu Ile Leu Val Glu Glu Gln Pro
    1           5               10              15
Gly Ser Asn Tyr Leu Val Lys Leu Pro Ile His Ser Gly His Met Pro
            20              25              30
Gln Asp Ala Lys Gln Gln Arg Ile Leu Val Cys Ser Gly Tyr Leu Cys
        35              40              45
His Leu Cys Arg Leu Asn Pro Lys Ser Phe Gln Val Ser Ser Leu Glu
    50              55              60
Ala Leu Ile Phe Ser Gly Lys Gln Gln His Gln Lys Pro Thr Pro Phe
65              70              75              80
Gln Tyr Cys Leu Tyr Gln Pro Val Tyr Ser Ile Phe His Ile Gln Asp
            85              90                  95
Ser His Leu Ile Thr Val Ser Glu Arg Ala Gly Pro Pro
            100             105
```

```
        <210> 964
        <211> 118
        <212> PRT
        <213> Homo sapiens


        <400> 964
Pro Thr Xaa Val Phe Phe Leu Lys Met Gly Gly Thr Gln Gly Xaa Arg
1           5               10              15
Gln Gly His Trp His Arg Phe Phe Phe Pro Val Xaa Gln Tyr Thr Lys
            20              25              30
Asn Met Ala Thr Ala Xaa Ser Xaa Leu Ser Ser Ile Pro Ser Trp Ser
        35              40              45
Ile Ser Leu Asn Ser Gln Thr Leu Pro Arg Ile Ser Thr Gly Asn Leu
    50              55              60
Glu Leu Ser Asn Thr Gly Phe Thr Leu Ser Pro Asp Arg Asn Pro Phe
65              70              75              80
Thr Gly Leu Lys Leu Ser Asn Ile Ala Ser Tyr Leu Ala Leu Ser Ser
            85              90              95
Gly Phe Thr Ala His Gly Ser Ser Ala Ala Glu Val Pro Leu Ile Ser
            100             105             110
Lys Gly Leu Leu Val Ser
        115
```

```
        <210> 965
        <211> 78
        <212> PRT
        <213> Homo sapiens


        <400> 965
```

```
Thr Gly Gln Gly Pro Xaa Lys Xaa Arg Met Ala Ala Met Leu Xaa Leu
1               5               10              15
Leu Leu Ala Leu Tyr Leu Met Xaa Ile Phe Xaa Gly Xaa Lys Phe Xaa
        20              25              30
Pro Xaa Leu Ser Leu Lys Arg Asn Ile Xaa Phe Xaa Thr Xaa Phe Val
        35              40              45
Arg Asn Arg Xaa Xaa Phe Ile Ser Gln Pro Pro Trp Xaa Gly Phe Gly
        50              55              60
Gly Pro Lys Asn Xaa Xaa Lys Xaa Lys Xaa Xaa Phe Phe Lys
65              70              75
```

```
            <210> 966
            <211> 181
            <212> PRT
            <213> Homo sapiens


            <400> 966
Glu Leu Thr Val Phe Gln Ser Lys Asp Val Pro Glu Lys Thr Ser Ser
1               5               10              15
Pro Glu Glu Ser Ile Arg Met Thr Lys Gly Ile Thr Met Ala Thr Ala
        20              25              30
Lys Ala Val Ala Ala Gly Asn Ser Cys Arg Gln Glu Asp Val Ile Ala
        35              40              45
Thr Ala Asn Leu Ser Arg Lys Ala Val Ser Asp Met Leu Thr Ala Cys
    50              55              60
Lys Gln Ala Ser Phe His Pro Asp Val Ser Asp Glu Val Arg Thr Arg
65              70              75              80
Ala Leu Arg Phe Gly Thr Glu Cys Thr Leu Gly Tyr Leu Asp Leu Leu
            85              90              95
Glu His Val Leu Val Ile Leu Gln Lys Pro Thr Pro Glu Phe Lys Gln
            100             105             110
Gln Leu Ala Ala Phe Ser Lys Arg Val Ala Gly Ala Val Thr Glu Leu
            115             120             125
Ile Gln Ala Ala Glu Ala Met Lys Gly Thr Glu Trp Val Asp Pro Glu
    130             135             140
Asp Pro Thr Val Ile Ala Glu Thr Glu Leu Leu Gly Ala Ala Ala Ser
145             150             155             160
Ile Glu Ala Ala Ala Lys Lys Leu Glu Gln Leu Lys Pro Arg Ala Lys
            165             170             175
Pro Lys Gln Ala Gly
            180


            <210> 967
            <211> 90
            <212> PRT
            <213> Homo sapiens


            <400> 967
Leu Ser Thr Gly Ser Arg Gly Phe Val Trp Met Thr Leu Cys Glu Leu
1               5               10              15
Lys Gln Pro Leu Gln Gly Lys Glu Pro Thr Asp Cys Ile Thr Ala Pro
        20              25              30
Ala His Gln Ala Pro Thr Ala Phe Arg Asn Xaa Ala Leu Trp Thr Thr
        35              40              45
Glu Glu Gln Asn Asn Arg Ser Val Phe Trp Ala Thr Lys Tyr Xaa Met
    50              55              60
Gly Leu Gly Cys Thr Arg Ser Leu His Thr Glu Ala Xaa Lys Arg Ala
65              70              75              80
Asn Arg Gly Gly Asn Phe Ser Pro Pro Gly
            85              90


            <210> 968
            <211> 100
```

365

```
        <212> PRT
        <213> Homo sapiens


        <400> 968
 5   Asn Ser Leu Cys Arg Val Arg Ser Pro Gln Thr Val Leu Gln Pro Leu
     1               5                   10                  15
     Leu Thr Lys Pro Arg Arg Pro Ser Ala Thr Xaa Pro Phe Gly Leu Arg
                 20                  25                  30
     Arg Asn Lys Ile Ile Val Gln Phe Ser Gly Pro Gln Asn Thr Xaa Trp
10               35                  40                  45
     Val Trp Val Val Gln Gly Ala Tyr Thr Arg Arg Gln Xaa Ser Val Gln
             50                  55                  60
     Thr Gly Ala Gly Ile Phe His Pro Leu Gly Glu Pro Val Leu Lys Thr
     65                  70                  75                  80
15   Trp Lys Glu Asp Leu Ser His Pro Pro Gly Val His Thr Gly Leu Cys
                     85                  90                  95
     Phe Trp Leu Leu
                 100


20          <210> 969
            <211> 125
            <212> PRT
            <213> Homo sapiens


25          <400> 969
     Gly Leu Lys Xaa Xaa Ala Lys Met Arg Pro Xaa Gly Asn Ala Xaa Gly
     1               5                   10                  15
     Xaa Ile Gly Gln Thr Val Phe Xaa Lys Xaa Trp Ala Xaa Ser Glu Thr
                 20                  25                  30
30   Xaa Pro Xaa Xaa Pro Gly Xaa Ser Xaa Lys Xaa Xaa Gly Val Val Phe
                 35                  40                  45
     Thr Phe Leu Ser Arg Gly His Xaa Trp Asn Val Arg Met Ser Xaa Val
             50                  55                  60
     Lys Cys Xaa Thr Gln Asn Ser Phe Ala Xaa Ser Xaa His Ala Ser Xaa
35   65                  70                  75                  80
     Cys Xaa Arg Lys Xaa Gly Cys Thr Phe His Gly Leu Val Thr Asn Lys
                     85                  90                  95
     Glu Lys Ser Val Leu Cys Cys Xaa Gln Thr Leu Trp Leu Leu Leu Val
                 100                 105                 110
40   Leu Leu Leu Gly Leu Leu Leu Asp Leu Phe Met Ile Leu
                 115                 120                 125


            <210> 970
            <211> 122
45          <212> PRT
            <213> Homo sapiens


            <400> 970
     Asn Xaa Pro Xaa Xaa Ser Arg Xaa Lys Xaa Glu Xaa Xaa Gly Gly Cys
50   1               5                   10                  15
     Phe His Ile Phe Val Pro Trp Ala Xaa Val Glu Cys Ser Tyr Val Xaa
                 20                  25                  30
     Gly Lys Met Xaa Tyr Pro Lys Phe Phe Cys Arg Xaa Xaa Ser Cys Leu
                 35                  40                  45
55   Xaa Val Xaa Gln Lys Xaa Gly Val His Val Ser Trp Thr Cys Tyr Gln
             50                  55                  60
     Gln Arg Lys Val Ser Ile Met Leu Xaa Ser Asp Thr Leu Ala Phe Val
     65                  70                  75                  80
     Gly Pro Ser Leu Arg Pro Ala Pro Gly Pro Leu Tyr Asp Ile Val Ile
60               85                  90                  95
     Gly Lys Lys Ile Ile Asp Val Ile Glu Tyr Ser Ser Ser Ser Gln Glu
                 100                 105                 110
     Lys Thr Glu Ala Gly Val Gly His Gly Ser
```

366

115   120

<210> 971
<211> 169
<212> PRT
<213> Homo sapiens

<400> 971
Cys Ile Lys Gln Glu Leu Thr Val Phe Gln Ser Lys Asp Val Pro Glu
1   5   10   15
Lys Thr Ser Ser Pro Glu Glu Ser Ile Xaa Met Thr Lys Gly Ile Thr
            20   25   30
Met Ala Thr Ala Lys Ala Val Ala Ala Gly Asn Ser Cys Xaa Gln Glu
        35   40   45
Asp Val Ile Ala Thr Ala Asn Leu Ser Arg Lys Ala Val Ser Asp Met
    50   55   60
Leu Thr Ala Cys Lys Gln Ala Ser Phe His Pro Asp Val Ser Asp Glu
65   70   75   80
Val Arg Thr Xaa Ala Leu Arg Phe Gly Thr Glu Cys Thr Leu Gly Tyr
                85   90   95
Leu Asp Leu Leu Glu His Val Leu Val Ile Leu Gln Lys Pro Thr Pro
            100   105   110
Glu Phe Lys Gln Gln Leu Ala Ala Phe Ser Lys Arg Val Ala Gly Ala
            115   120   125
Val Thr Glu Leu Ile Gln Ala Ala Glu Ala Met Lys Gly Thr Glu Trp
    130   135   140
Val Asp Pro Glu Asp Pro Thr Val Ile Ala Glu Thr Glu Leu Leu Gly
145   150   155   160
Ala Ala Ala Ser Ile Glu Ala Ala Cys
                165

<210> 972
<211> 112
<212> PRT
<213> Homo sapiens

<400> 972
Arg Gly Glu Asn Xaa Ser Leu Ala Phe Arg Asp Gly Val His Pro Trp
1   5   10   15
Leu Leu Gly Pro Pro Gly Ala Arg Leu Gly Asp Ser Ser Glu Thr Asn
            20   25   30
Pro Arg Ile Gln Ala Ala Ala Gly Arg Phe Leu Gln Ala Ser Arg Arg
        35   40   45
Arg Cys Asp Arg Ala His Pro Gly Gly Gly Ser His Glu Arg Asn Arg
    50   55   60
Val Gly Gly Ser Arg Arg Pro Asn Cys His Cys Arg Asn Arg Val Thr
65   70   75   80
Gly Gly Cys Ser Ile His Arg Ser Cys Leu Leu Lys Lys Leu Glu Gln
                85   90   95
Leu Lys Pro Arg Ala Lys Pro Lys Gln Ala Asp Glu Thr Leu Gly Leu
            100   105   110

<210> 973
<211> 95
<212> PRT
<213> Homo sapiens

<400> 973
Leu Cys Phe Cys Asn Asp Ser Trp Val Phe Trp Ile His Pro Leu Cys
1   5   10   15
Ser Phe His Gly Phe Arg Arg Leu Asp Glu Leu Cys His Ser Ala Gly
            20   25   30
Asp Ser Leu Gly Glu Ser Gly Gln Leu Leu Leu Glu Phe Trp Gly Trp

```
                 35                    40                    45
        Phe Leu Lys Asn His Gln Asp Val Leu Gln Glu Val Gln Val Ala Lys
             50                    55                    60
        Gly Ala Leu Arg Pro Glu Thr Gln Gly Xaa Gly Ser His Leu Val Thr
   5    65                    70                    75                    80
        Asp Ile Gly Val Glu Gly Cys Leu Leu Ala Ser Arg Gln His Ile
                          85                    90                    95


                <210> 974
  10            <211> 95
                <212> PRT
                <213> Homo sapiens


                <400> 974
  15    Pro Arg Val His Ser Val Pro Lys Arg Lys Ala Xaa Val Leu Thr Ser
        1                5                  10                    15
        Ser Leu Thr Ser Gly Trp Lys Asp Ala Cys Leu Gln Ala Val Asn Ile
                     20                    25                    30
        Ser Asp Thr Ala Phe Arg Leu Arg Leu Ala Val Ala Ile Thr Ser Ser
  20                 35                    40                    45
        Cys Xaa His Glu Phe Pro Ala Ala Thr Ala Leu Ala Val Ala Met Val
                     50                    55                    60
        Met Pro Phe Val Ile Xaa Met Asp Ser Ser Gly Asp Asp Val Phe Ser
        65                    70                    75                    80
  25    Gly Thr Ser Phe Asp Trp Asn Thr Val Ser Ser Cys Phe Met His
                          85                    90                    95


                <210> 975
                <211> 159
  30            <212> PRT
                <213> Homo sapiens


                <400> 975
        Arg Xaa Xaa Gly Gly Thr Gln Lys Gly Xaa Pro Gln Xaa Met Ala Pro
  35    1                5                  10                    15
        Xaa Xaa Asn Trp Thr Asn Lys Phe Ser Xaa Lys Val Gly Pro Leu Ser
                     20                    25                    30
        Trp Lys Xaa Ala Pro Xaa Xaa Pro Gly Xaa Ser Leu Glu Xaa Leu Xaa
                     35                    40                    45
        Xaa Leu Phe Ser His Phe Leu Ser Pro Trp Ala Xaa Gly Gly Met Phe
  40         50                    55                    60
        Xaa Met Ser His Gly Tyr Asn Cys Leu Thr His Lys Phe Phe Cys Arg
        65                    70                    75                    80
        Xaa Pro Ser Cys Xaa Xaa Val Xaa Gln Xaa Xaa Gly Val His Val Ser
  45                 85                    90                    95
        Trp Thr Cys Tyr Gln Gln Arg Lys Val Ser Ile Met Leu Phe Ser Asp
                     100                   105                   110
        Thr Leu Ala Phe Val Gly Pro Ser Leu Arg Pro Ala Pro Gly Pro Leu
                     115                   120                   125
  50    Tyr Asp Ile Val Ile Gly Lys Lys Ile Ile Asp Val Ile Glu Tyr Ser
             130                   135                   140
        Ser Ser Ser Gln Glu Lys Thr Glu Ala Gly Val Gly His Gly Ser
        145                   150                   155


  55            <210> 976
                <211> 118
                <212> PRT
                <213> Homo sapiens


  60            <400> 976
        Xaa Trp Asn Pro Lys Gly Glu Xaa Pro Gly Xaa Gly Pro Trp Xaa Xaa
        1                5                  10                    15
        Leu Asp Lys Gln Val Phe Xaa Lys Gly Trp Ala Ile Lys Leu Glu Thr
```

```
               20               25               30
         Xaa Pro Xaa Xaa Ser Arg Val Xaa Pro Gly Xaa Pro Xaa Xaa Phe Val
                  35               40               45
         Phe Thr Phe Phe Val Pro Val Gly His Xaa Trp Asn Val Arg Xaa Val
 5          50               55               60
         Thr Arg Val Gln Leu Ser Tyr Pro Gln Ile Leu Leu Pro Xaa Pro Phe
         65               70               75               80
         Met Xaa His Xaa Xaa Ser Glu Xaa Arg Gly Ala Arg Phe Met Asp Leu
                        85               90               95
10       Leu Pro Thr Lys Lys Ser Gln Tyr Tyr Val Val Leu Arg His Phe Gly
                    100              105              110
         Phe Cys Trp Ser Phe Ser
                    115


15            <210> 977
              <211> 141
              <212> PRT
              <213> Homo sapiens


20            <400> 977
         Trp Leu Xaa Ala Ser Xaa Cys Ser Val Leu Met Cys Val Ser Trp Lys
          1               5               10               15
         Xaa Ala Arg Leu Ala Ala Gln Arg Gly Gln Ser Val Arg Leu Trp Leu
                    20               25               30
25       Xaa Arg Gly Cys Arg Arg Xaa Leu Trp Gly Xaa Arg Leu Xaa Leu Arg
                    35               40               45
         Gly Arg Leu Arg Gly Arg Arg Gly Leu Trp Gly Leu Leu Arg Gly Trp
                    50               55               60
         Arg Arg Arg Leu Leu Leu Gly His Pro His Val Ala Arg Ala Arg Arg
30       65               70               75               80
         Gly Gly Arg Gly Ala Ala Asp Ala Val Ala Ala Arg Val Gly Asp Leu
                        85               90               95
         Ala Val Arg Gly Arg His Pro Arg Val Ala Val Gly Arg Gln Val Leu
                    100              105              110
35       Val Lys Leu Val Asp Ile Glu Gly Leu Asp Val Gly Asp Asp Val Ala
                    115              120              125
         Ala Gln Leu Ala Asp Val His Val Ala Glu Val Asp Arg
                    130              135              140


40            <210> 978
              <211> 72
              <212> PRT
              <213> Homo sapiens


45            <400> 978
         Leu Glu Xaa Gly Pro Ala Ser Cys Ser Ala Trp Ser Glu Cys Ala Pro
          1               5               10               15
         Val Ala Ala Xaa Gly Val Pro Pro Xaa Ala Val Gly Xaa Pro Pro Thr
                    20               25               30
50       Xaa Ala Gly Ala Pro Ala Gly Pro Ala Gly Pro Val Gly Ala Ala Ala
                    35               40               45
         Gly Val Ala Ala Ala Pro Ala Ala Trp Thr Ser Thr Arg Gly Pro Arg
                    50               55               60
         Ser Pro Gly Trp Pro Arg Cys Cys
55       65               70


              <210> 979
              <211> 96
              <212> PRT
60            <213> Homo sapiens


              <400> 979
         Pro Ile Asp Phe Arg Asp Val Asp Ile Gly Glu Leu Ser Ser Asp Val
```

369

```
      1                 5                      10                   15
      Ile Ser Asn Ile Glu Thr Phe Asp Val Asn Glu Phe Asp Gln Tyr Leu
                   20                      25                   30
      Pro Pro Asn Gly His Pro Gly Val Pro Ala Thr His Gly Gln Val Thr
                   35                      40                   45
      Tyr Thr Gly Ser Tyr Gly Ile Ser Ser Thr Ala Ala Thr Pro Ala Ser
                   50                      55                   60
      Ala Gly His Val Trp Met Ser Lys Gln Gln Ala Pro Pro Pro Pro Pro
      65                      70                      75                   80
      Gln Gln Pro Pro Gln Ala Pro Pro Ala Pro Gln Ala Pro Pro Gln Xaa
                        85                      90                   95


            <210> 980
            <211> 103
            <212> PRT
            <213> Homo sapiens


            <400> 980
      Ala Ala Thr Ser Ser Pro Thr Ser Arg Pro Ser Met Ser Thr Ser Leu
      1                 5                      10                   15
      Thr Ser Thr Cys Arg Pro Thr Ala Thr Arg Gly Cys Arg Pro Arg Thr
                   20                      25                   30
      Ala Arg Ser Pro Thr Arg Ala Ala Thr Ala Ser Ala Ala Pro Arg Pro
                   35                      40                   45
      Pro Arg Arg Ala Arg Ala Thr Cys Gly Cys Pro Ser Ser Arg Arg Arg
            50                      55                      60
      Arg His Pro Arg Ser Ser Pro His Arg Pro Arg Arg Pro Arg Arg Arg
      65                      70                      75                   80
      Pro Arg Xaa Arg Arg Arg Xaa Pro His Ser Xaa Arg Arg His Pro Xaa
                        85                      90                   95
      Ser Ser His Arg Arg Thr Leu
                   100


            <210> 981
            <211> 164
            <212> PRT
            <213> Homo sapiens


            <400> 981
      Asp Ala Gly Ala His Ala Gly Ala Arg Gln Arg Leu Gln Gln Glu Gln
      1                 5                      10                   15
      Ala Ala Arg Gln Ala Ala His Glu Arg Leu His Gly Val Gly Ala Gly
                   20                      25                   30
      Gly Ala Gln Glu Ala Arg Gly Pro Val Pro Ala Leu Ala Gln Arg Arg
                   35                      40                   45
      Ala Gln Gln Asp Ala Gly Gln Ala Leu Glu Thr Ser Glu Arg Glu Arg
            50                      55                      60
      Glu Ala Ala Leu Arg Gly Gly Gly Gly Ala Ala Ala Arg Ala Ala Gln
      65                      70                      75                   80
      Glu Gly Pro Pro Gly Leu Gln Val Pro Ala Ala Ala Glu Glu Val Gly
                        85                      90                   95
      Glu Glu Arg Ala Gly Gly Gly Arg Gly Gly His Gly Ala Asp Ala His
                   100                     105                  110
      Leu Pro Gln Arg His Leu Gln Gly Ala Ala Gly Arg Leu Ala Thr Leu
                   115                     120                  125
      Leu Xaa Arg His Glu Arg Gly Ala Leu Pro Arg Arg Ala Leu Gly Ala
                   130                     135                  140
      Ile Pro Gly Pro Thr Asp Pro Thr His His Pro Gln Asn Arg Arg Ala
      145                     150                     155                  160
      Ala Gly Gln Gly


            <210> 982
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```
              <211> 192
              <212> PRT
              <213> Homo sapiens

   5          <400> 982
      Thr Leu Val Pro Met Pro Val Arg Val Asn Gly Ser Ser Lys Asn Lys
       1           5               10                  15
      Pro His Val Lys Arg Pro Met Asn Ala Phe Met Val Trp Ala Gln Ala
                  20              25                  30
  10  Ala Arg Arg Lys Leu Ala Asp Gln Tyr Pro His Leu His Asn Ala Glu
              35              40                  45
      Leu Ser Lys Thr Leu Gly Lys Leu Trp Arg Leu Leu Asn Glu Ser Glu
          50              55                  60
      Lys Arg Pro Phe Val Glu Glu Ala Glu Arg Leu Arg Val Gln His Lys
  15  65              70                  75                  80
      Lys Asp His Pro Asp Tyr Lys Tyr Gln Pro Arg Arg Arg Lys Ser Val
                  85              90                  95
      Lys Asn Gly Gln Ala Glu Ala Glu Glu Ala Thr Glu Gln Thr His Ile
                  100             105                 110
  20  Ser Pro Asn Ala Ile Phe Lys Ala Leu Gln Ala Asp Ser Pro His Ser
                  115             120                 125
      Ser Xaa Gly Met Ser Glu Val His Ser Pro Gly Glu His Ser Gly Gln
          130             135                 140
      Ser Gln Gly Pro Pro Thr Pro Pro Thr Thr Pro Lys Thr Asp Val Gln
  25  145             150                 155                 160
      Pro Gly Lys Ala Asp Leu Lys Arg Glu Gly Arg Pro Leu Pro Glu Gly
                  165             170                 175
      Gly Arg Gln Ala Pro Tyr Arg Leu Ser Arg Arg Gly His Xaa Ala Ser
                  180             185                 190
  30
              <210> 983
              <211> 196
              <212> PRT
              <213> Homo sapiens
  35
              <400> 983
      Arg Arg Cys Ser Ala Arg Xaa Met Ser Thr Ser Arg Lys Ser Ile Gly
       1           5               10                  15
      Gly Leu Ser Ala Pro Leu Trp Gln Gly Ala Pro Leu Ser Leu Gln Val
  40              20              25                  30
      Ser Leu Ala Arg Leu His Val Gly Phe Gly Gly Gly Trp Gly Arg
          35              40                  45
      Trp Ala Leu Gly Leu Pro Arg Val Leu Ala Gly Gly Val His Leu Ala
          50              55                  60
  45  His Ala Xaa Gly Gly Val Trp Arg Val Gly Leu Gln Arg Leu Glu Asp
      65              70                  75                  80
      Gly Val Gly Gly Asp Val Arg Leu Leu Arg Gly Leu Leu Cys Leu Arg
                  85              90                  95
      Leu Pro Val Leu His Arg Leu Pro Pro Pro Arg Leu Val Leu Val Ile
  50              100             105                 110
      Arg Val Val Leu Leu Val Leu His Ala Gln Pro Leu Arg Leu Leu His
          115             120                 125
      Glu Gly Pro Leu Leu Ala Leu Val Gln Lys Ser Pro Glu Leu Ala Gln
          130             135                 140
  55  Arg Leu Ala Glu Leu Gly Val Val Gln Val Arg Val Leu Val Arg Glu
      145             150                 155                 160
      Leu Pro Ala Arg Arg Leu Arg Pro His His Glu Gly Val His Gly Pro
                  165             170                 175
      Leu Asp Val Arg Leu Val Leu Ala Gly Ala Val Asp Ala His Arg His
  60              180             185                 190
      Gly His Gln Arg
                  195
```

```
<210> 984
<211> 99
<212> PRT
<213> Homo sapiens

<400> 984
Met Ser Leu Arg Lys Lys Lys Lys Lys Lys Gln Xaa Gln Asn Lys
1               5                   10                  15
Lys Xaa Lys Lys Thr Pro Met Ser Lys Gly Glu Phe Trp Val Xaa Ser
            20                  25                  30
Phe Ser Phe Phe Gly Leu Phe Phe Arg Asp His Leu Xaa His Xaa Arg
            35                  40                  45
Pro Leu Trp Gly Gly Pro Pro Gln Xaa Ser Xaa Trp Lys Leu Gly Xaa
            50                  55                  60
Xaa Thr Gly Phe Val Xaa Lys Xaa Leu Gly Gly Leu Gly Gly Xaa Xaa
65                  70                  75                  80
Pro Gly Met Xaa Lys Gly Asp Pro His Xaa Gly Val Arg Ala Xaa Xaa
                85                  90                  95
Gly Gly Trp


<210> 985
<211> 96
<212> PRT
<213> Homo sapiens

<400> 985
Gly Arg Arg Arg Arg Arg Lys Asn Lys Xaa Lys Ile Lys Lys Xaa Lys
1               5                   10                  15
Lys His Gln Cys Pro Lys Gly Asn Ser Gly Xaa Gly Pro Ser Leu Ser
            20                  25                  30
Ser Gly Tyr Phe Leu Gly Ile Ile Xaa Ala Xaa Xaa Ala Leu Cys Gly
            35                  40                  45
Glu Ala Leu Leu Xaa Gly Pro Xaa Gly Asn Leu Gly Xaa Xaa Pro Gly
            50                  55                  60
Leu Xaa Pro Asn Xaa Trp Gly Gly Leu Val Gly Xaa Xaa Arg Gly Xaa
65                  70                  75                  80
Gly Lys Gly Thr Pro Ile Xaa Val Phe Gly Pro Xaa Xaa Gly Gly Gly
                85                  90                  95


<210> 986
<211> 133
<212> PRT
<213> Homo sapiens

<400> 986
Gly His Pro Glu Gly Pro Gly Ala His Leu Asp Met Asn Ser Leu Asp
1               5                   10                  15
Arg Ala Gln Ala Ala Lys Asn Lys Gly Asn Lys Tyr Phe Lys Ala Gly
            20                  25                  30
Lys Tyr Glu Gln Ala Ile Gln Cys Tyr Thr Glu Ala Ile Ser Leu Cys
            35                  40                  45
Pro Thr Glu Lys Asn Val Asp Leu Ser Thr Phe Tyr Gln Asn Arg Ala
            50                  55                  60
Ala Ala Phe Glu Gln Leu Gln Lys Trp Lys Glu Val Ala Gln Asp Cys
65                  70                  75                  80
Thr Lys Ala Val Glu Leu Asn Pro Lys Tyr Val Lys Ala Leu Phe Arg
                85                  90                  95
Arg Ala Lys Ala His Glu Lys Leu Asp Asn Lys Lys Glu Cys Leu Glu
            100                 105                 110
Asp Val Thr Ala Val Cys Ile Leu Glu Gly Phe Gln Asn Gln Gln Ser
            115                 120                 125
Met Leu Leu Ala Arg
```

130

```
        <210> 987
        <211> 103
        <212> PRT
        <213> Homo sapiens


        <400> 987
Leu Leu Met Gly Phe Cys Thr Ser Lys Glu Ser Phe His Ile Phe Gly
1               5                   10                  15
Ile Lys Phe Asn Ser Phe Cys Thr Val Leu Cys His Phe Phe Pro Phe
            20                  25                  30
Leu Gln Leu Phe Lys Gly Ser Ser Ser Val Leu Ile Lys Cys Arg Lys
        35                  40                  45
Val Asn Ile Leu Leu Cys Arg Ala Gln Ala Asn Ser Leu Ser Ile Ala
        50                  55                  60
Leu Asn Ser Leu Phe Ile Phe Ser Cys Phe Lys Ile Phe Ile Ala Phe
65                  70                  75                  80
Ile Leu Gly Cys Leu Gly Ser Ile Lys Arg Val His Val Gln Val Ser
20                  85                  90                  95
Thr Gly Thr Phe Arg Val Ser
                100


        <210> 988
        <211> 64
        <212> PRT
        <213> Homo sapiens


        <400> 988
Asn Gly Thr Cys Phe Ser Phe Leu Cys Val Ser Leu Pro Asn Pro Lys
1               5                   10                  15
Met Lys Glu Gly Arg Arg Val Glu Glu Asn Val Ser Val Asn Val Asn
            20                  25                  30
Thr Ala Met Gln Ile Lys Thr Phe Leu Lys Ser Glu Val Ile Gln Arg
        35                  40                  45
Cys Arg Thr Phe Leu Tyr Leu Gly Val Ile Arg Arg Cys Ile Ile Ser
        50                  55                  60


        <210> 989
        <211> 77
        <212> PRT
        <213> Homo sapiens


        <400> 989
Met Thr Ser Asp Phe Lys Lys Val Phe Ile Cys Met Ala Val Phe Thr
1               5                   10                  15
Leu Thr Leu Thr Phe Ser Ser Thr Leu Leu Pro Ser Phe Ile Leu Gly
            20                  25                  30
Leu Gly Arg Glu Thr Gln Arg Lys Leu Lys His Val Pro Phe Tyr Thr
        35                  40                  45
Val Ile Pro Asn Ser His Gly Leu Leu Pro Val Val Lys Met Phe Glu
        50                  55                  60
Thr Ala Leu Lys Ala Ala Ser Val Cys Ile Phe Leu Leu
65                  70                  75


        <210> 990
        <211> 218
        <212> PRT
        <213> Homo sapiens


        <400> 990
Pro Gly Ser Gly His Pro Glu Gly Pro Gly Ala His Leu Asp Met Asn
1               5                   10                  15
```

```
        Ser Leu Asp Arg Ala Gln Ala Ala Lys Asn Lys Gly Asn Lys Tyr Phe
                20                      25                  30
        Lys Ala Gly Lys Tyr Glu Gln Ala Ile Gln Cys Tyr Thr Glu Ala Ile
                35                      40                  45
  5     Ser Leu Cys Pro Thr Glu Lys Asn Val Asp Leu Ser Thr Phe Tyr Gln
                50                      55                  60
        Asn Arg Ala Ala Ala Phe Glu Gln Leu Gln Lys Trp Lys Glu Val Ala
        65              70                      75                      80
        Gln Asp Cys Thr Lys Ala Val Glu Leu Asn Pro Lys Tyr Val Lys Ala
  10                    85                      90                  95
        Leu Phe Arg Arg Ala Lys Ala His Glu Lys Leu Asp Asn Lys Lys Glu
                    100                     105                 110
        Cys Leu Glu Asp Val Thr Ala Val Cys Ile Leu Glu Gly Phe Gln Asn
                    115                     120                 125
  15    Gln Gln Ser Met Leu Leu Ala Asp Lys Val Leu Lys Leu Leu Gly Lys
                    130                     135                 140
        Glu Lys Ala Lys Glu Lys Tyr Lys Asn Arg Glu Pro Leu Met Pro Ser
        145                     150                     155                 160
        Pro Gln Phe Ile Lys Ser Tyr Phe Ser Ser Phe Thr Asp Asp Ile Ile
  20                    165                     170                 175
        Ser Gln Pro Met Leu Lys Gly Glu Lys Ser Asp Glu Asp Lys Asp Lys
                    180                     185                 190
        Glu Gly Xaa Ala Leu Glu Val Lys Arg Lys Phe Trp Ile Leu Lys Xaa
                    195                     200                 205
  25    Pro Thr Val Tyr Xaa Arg Arg Lys Leu Arg
        210                     215


            <210> 991
            <211> 268
  30        <212> PRT
            <213> Homo sapiens


            <400> 991
        Glu Asn Ile Met Val Phe Asn Trp Trp Ala Leu Phe Ser Glu Lys Ala
  35    1               5                       10                  15
        Val His Leu Gln Glu Glu Leu Ile Ala Ile Asn Ser Lys Lys Glu Glu
                    20                      25                  30
        Leu Asn Gln Ser Val Asn Arg Val Lys Glu Leu Glu Leu Glu Leu Glu
                    35                      40                  45
  40    Ser Val Lys Ala Gln Ser Leu Ala Ile Thr Lys Gln Asn His Met Leu
                50                      55                  60
        Asn Glu Lys Val Lys Glu Met Ser Asp Tyr Ser Leu Leu Lys Glu Glu
        65                      70                      75                  80
        Lys Leu Glu Leu Leu Ala Gln Asn Lys Leu Leu Lys Gln Gln Leu Glu
  45                    85                      90                  95
        Glu Ser Arg Asn Glu Asn Leu Arg Leu Leu Asn Arg Leu Ala Gln Pro
                    100                     105                 110
        Ala Pro Glu Leu Ala Val Phe Gln Lys Glu Leu Arg Lys Ala Glu Lys
                    115                     120                 125
  50    Ala Ile Val Val Glu His Glu Glu Phe Glu Ser Cys Arg Gln Ala Leu
                    130                     135                 140
        His Lys Gln Leu Gln Asp Glu Ile Glu His Ser Ala Gln Leu Lys Ala
        145                     150                     155                 160
        Gln Ile Leu Gly Tyr Lys Ala Ser Val Lys Ser Leu Thr Thr Gln Val
  55                    165                     170                 175
        Ala Asp Leu Lys Leu Gln Leu Lys Gln Thr Gln Thr Ala Leu Glu Asn
                    180                     185                 190
        Glu Val Tyr Cys Asn Pro Lys Gln Ser Val Ile Asp Arg Ser Val Asn
                    195                     200                 205
  60    Gly Leu Ile Asn Gly Asn Val Val Pro Cys Asn Gly Glu Ile Ser Gly
                    210                     215                 220
        Asp Phe Leu Asn Asn Pro Phe Lys Gln Glu Asn Val Leu Ala Arg Met
        225                     230                     235                 240
```

374

```
       Gly Ala Ser Arg Ile Thr Asn Tyr Pro Thr Ala Trp Val Glu Gly Ser
                   245             250                 255
       Ser Pro Asp Ser Asp Leu Glu Phe Val Ala Gln Tyr
                   260             265
  5

           <210> 992
           <211> 219
           <212> PRT
           <213> Homo sapiens
 10
           <400> 992
       Val Lys Ala Gln Ser Leu Ala Ile Thr Lys Gln Asn His Met Leu Asn
       1               5               10                  15
       Glu Lys Val Lys Glu Met Ser Asp Tyr Ser Leu Leu Lys Glu Glu Lys
 15                20              25                  30
       Leu Glu Leu Leu Ala Gln Asn Lys Leu Leu Lys Gln Gln Leu Glu Glu
                   35              40                  45
       Ser Arg Asn Glu Asn Leu Arg Leu Leu Asn Arg Leu Ala Gln Pro Ala
           50              55                  60
 20    Pro Glu Leu Ala Val Phe Gln Lys Glu Leu Arg Lys Ala Glu Lys Ala
       65              70                  75                  80
       Ile Val Val Glu His Glu Glu Phe Glu Ser Cys Arg Gln Ala Leu His
                   85              90                  95
       Lys Gln Leu Gln Asp Glu Ile Glu His Ser Ala Gln Leu Lys Ala Gln
 25                100             105                 110
       Ile Leu Gly Tyr Lys Ala Ser Val Lys Ser Leu Thr Thr Gln Val Ala
                   115             120                 125
       Asp Leu Lys Leu Gln Leu Lys Gln Thr Gln Thr Ala Leu Glu Asn Glu
                   130             135                 140
 30    Val Tyr Cys Asn Pro Lys Gln Ser Val Ile Asp Arg Ser Val Asn Gly
       145             150                 155                 160
       Leu Ile Asn Gly Asn Val Val Pro Cys Asn Gly Glu Ile Ser Gly Asp
                   165             170                 175
       Phe Leu Asn Asn Pro Phe Lys Gln Glu Asn Val Leu Ala Arg Met Gly
 35                180             185                 190
       Ala Ser Arg Ile Thr Asn Tyr Xaa Thr Ala Trp Val Xaa Gly Ser Ser
                   195             200                 205
       Pro Asp Ser Asp Leu Glu Phe Val Ala Gln Tyr
                   210             215
 40
           <210> 993
           <211> 194
           <212> PRT
           <213> Homo sapiens
 45
           <400> 993
       Met Arg Ser Leu Asn His Leu Phe Gly Phe Cys Arg Glu His Ala Lys
       1               5               10                  15
       Ala Ser Trp Xaa Met Gly Gly Leu Ser Pro Ala Gly Xaa Tyr Val Ser
 50                20              25                  30
       Cys Gly Arg Cys Cys Ser Cys Leu Cys Pro Ser His Ile Ser Thr Gln
                   35              40                  45
       Gly Val Asp Gln Lys Gln Ile Glu Xaa Gln Lys Glu Glu Glu Lys Ile
           50              55                  60
 55    Arg Glu Gln Gln Val Lys Glu Arg Arg Gln Arg Glu Glu Arg Arg Gln
       65              70                  75                  80
       Ser Asn Leu Gln Glu Val Leu Glu Arg Glu Arg Arg Glu Leu Glu Lys
                   85              90                  95
       Leu Tyr Gln Glu Arg Lys Met Ile Glu Glu Ser Leu Lys Ile Lys Ile
 60                100             105                 110
       Lys Lys Glu Leu Glu Met Glu Asn Glu Leu Glu Met Ser Asn Gln Glu
                   115             120                 125
       Ile Lys Asp Lys Ser Ala His Ser Glu Asn Pro Leu Glu Lys Tyr Met
```

375

```
                130                 135                 140
        Lys Ile Ile Gln Gln Glu Gln Asp Gln Glu Ser Ala Asp Lys Ser Ser
        145                 150                 155                 160
        Lys Lys Met Val Gln Glu Gly Ser Leu Val Asp Thr Leu Gln Ser Ser
5                           165                 170                 175
        Asp Lys Val Glu Ser Leu Thr Gly Phe Ser His Glu Glu Leu Asp Asp
                    180                 185                 190
        Ser Trp


10
                <210> 994
                <211> 189
                <212> PRT
                <213> Homo sapiens
15
                <400> 994
        Glu Asn Ile Met Val Phe Asn Trp Trp Ala Leu Phe Ser Glu Lys Ala
        1               5                   10                  15
        Val His Leu Gln Glu Glu Leu Ile Ala Ile Asn Ser Lys Lys Glu Glu
20                      20                  25                  30
        Leu Asn Gln Ser Val Asn Arg Val Lys Glu Leu Glu Leu Glu Leu Glu
                    35                  40                  45
        Ser Val Lys Ala Gln Ser Leu Ala Ile Thr Lys Gln Asn His Met Leu
                50                  55                  60
25      Asn Glu Lys Val Lys Glu Met Ser Asp Tyr Ser Leu Leu Lys Glu Glu
        65                  70                  75                  80
        Lys Leu Glu Leu Leu Ala Gln Asn Lys Leu Leu Lys Gln Gln Leu Glu
                    85                  90                  95
        Glu Ser Arg Asn Glu Asn Leu Arg Leu Leu Asn Arg Leu Ala Gln Pro
30                      100                 105                 110
        Ala Pro Glu Leu Ala Val Phe Gln Lys Glu Leu Arg Lys Ala Glu Lys
                    115                 120                 125
        Ala Ile Val Val Glu His Glu Glu Phe Glu Ser Cys Arg Gln Ala Leu
                130                 135                 140
35      His Lys Gln Leu Gln Asp Glu Ile Glu His Ser Ala Gln Leu Lys Ala
        145                 150                 155                 160
        Gln Ile Leu Gly Tyr Lys Ala Ser Val Lys Ser Leu Thr Thr Xaa Val
                    165                 170                 175
        Ala Asp Leu Lys Leu Gln Leu Lys Gln Thr Gln Thr Pro
40                      180                 185


                <210> 995
                <211> 125
                <212> PRT
45              <213> Homo sapiens


                <400> 995
        Lys Thr Glu Gly Arg Glu Lys Glu Arg Arg Gln Ser Asn Xaa Gln Glu
        1               5                   10                  15
50      Val Leu Glu Arg Glu Arg Arg Glu Leu Glu Lys Leu Tyr Gln Glu Arg
                        20                  25                  30
        Lys Met Ile Glu Glu Ser Leu Lys Ile Lys Ile Lys Lys Glu Leu Glu
                    35                  40                  45
        Met Glu Asn Glu Leu Glu Met Ser Asn Gln Glu Ile Lys Asp Lys Ser
55              50                  55                  60
        Ala His Ser Glu Asn Pro Leu Glu Lys Tyr Met Lys Ile Ile Gln Gln
        65                  70                  75                  80
        Glu Gln Asp Gln Glu Ser Ala Asp Lys Ser Ser Lys Lys Met Val Gln
                    85                  90                  95
60      Glu Gly Ser Leu Val Asp Thr Leu Gln Ser Asp Lys Val Glu Ser
                    100                 105                 110
        Leu Thr Gly Phe Xaa His Glu Glu Leu Asp Asp Ser Trp
                    115                 120                 125
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```
          <210> 996
          <211> 466
          <212> PRT
 5        <213> Homo sapiens

          <400> 996
     Thr Ile His Gln Val Ser Leu Asp Leu Asp Ser Leu Ala Glu Ser Pro
     1               5               10              15
10   Glu Ser Asp Phe Met Ser Ala Val Asn Glu Phe Val Ile Glu Glu Asn
                 20              25              30
     Leu Ser Ser Pro Asn Pro Ile Ser Asp Pro Gln Ser Pro Glu Met Met
                 35              40              45
     Val Glu Ser Leu Tyr Ser Ser Val Ile Asn Ala Ile Asp Ser Arg Arg
15       50              55              60
     Met Gln Asp Thr Asn Val Cys Gly Lys Glu Asp Phe Gly Asp His Thr
     65              70              75              80
     Ser Leu Asn Val Gln Leu Glu Arg Cys Arg Val Val Ala Gln Asp Ser
                 85              90              95
20   His Phe Ser Ile Gln Thr Ile Lys Glu Asp Leu Cys His Phe Arg Thr
                 100             105             110
     Phe Val Gln Lys Glu Gln Cys Asp Phe Ser Asn Ser Leu Lys Cys Thr
                 115             120             125
     Ala Val Glu Ile Arg Asn Ile Ile Glu Lys Val Lys Cys Ser Leu Glu
25       130             135             140
     Ile Thr Leu Lys Glu Lys His Gln Lys Glu Leu Leu Ser Leu Lys Asn
     145             150             155             160
     Glu Tyr Glu Gly Lys Leu Asp Gly Leu Ile Lys Glu Thr Glu Glu Asn
                 165             170             175
30   Glu Asn Lys Ile Lys Lys Leu Lys Gly Glu Leu Val Cys Leu Glu Glu
                 180             185             190
     Val Leu Gln Asn Lys Asp Asn Glu Phe Ala Leu Val Lys His Glu Lys
                 195             200             205
     Glu Ala Val Ile Cys Leu Gln Asn Glu Lys Asp Gln Lys Leu Xaa Glu
35       210             215             220
     Met Glu Asn Ile Met His Ser Gln Asn Cys Glu Ile Lys Glu Leu Lys
     225             230             235             240
     Gln Ser Arg Glu Ile Val Leu Glu Asp Leu Lys Lys Leu His Val Glu
                 245             250             255
40   Asn Asp Glu Lys Leu Gln Leu Leu Arg Ala Glu Leu Gln Ser Leu Glu
                 260             265             270
     Gln Ser His Leu Lys Glu Leu Glu Asp Thr Leu Gln Val Arg His Ile
                 275             280             285
     Gln Glu Phe Glu Lys Val Met Thr Asp His Arg Val Ser Leu Glu Glu
45       290             295             300
     Leu Lys Lys Glu Asn Gln Gln Ile Ile Asn Gln Ile Gln Glu Ser His
     305             310             315             320
     Ala Glu Ile Ile Gln Glu Lys Glu Lys Gln Leu Gln Glu Leu Lys Leu
                 325             330             335
50   Lys Val Ser Asp Leu Ser Asp Thr Arg Cys Lys Leu Glu Val Glu Leu
                 340             345             · 350
     Ala Leu Lys Glu Ala Glu Thr Asp Glu Ile Lys Ile Leu Leu Glu Glu
                 355             360             365
     Ser Arg Ala Gln Gln Lys Glu Thr Leu Lys Ser Leu Leu Glu Gln Glu
55       370             375             380
     Thr Glu Asn Leu Arg Thr Glu Ile Ser Lys Leu Asn Gln Lys Ile Gln
     385             390             395             400
     Asp Asn Asn Glu Asn Tyr Gln Val Gly Leu Ala Glu Leu Arg Thr Leu
                 405             410             415
60   Met Thr Ile Glu Lys Asp Gln Cys Ile Ser Glu Leu Ile Ser Arg His
                 420             425             430
     Glu Glu Glu Ser Asn Ile Leu Lys Ala Glu Leu Asn Lys Ser Tyr Ile
                 435             440             445
```

```
Phe Cys Ile Thr Gln Pro Phe Xaa Ile Glu Lys Asn Leu Lys Glu Pro
    450             455             460
Ile Xaa
465

        <210> 997
        <211> 237
        <212> PRT
        <213> Homo sapiens

        <400> 997
His Ser Gln Asn Cys Glu Ile Lys Glu Leu Lys Gln Ser Arg Glu Ile
 1               5               10              15
Val Leu Glu Asp Leu Lys Lys Leu His Val Glu Asn Asp Glu Lys Leu
            20              25              30
Gln Leu Leu Arg Ala Glu Leu Gln Ser Leu Glu Gln Ser His Leu Lys
        35              40              45
Glu Leu Glu Asp Thr Leu Gln Val Arg His Ile Gln Glu Phe Glu Lys
    50              55              60
Val Met Thr Asp His Arg Val Ser Leu Glu Glu Leu Lys Lys Glu Asn
65              70              75              80
Gln Gln Ile Ile Asn Gln Ile Gln Glu Ser His Ala Glu Ile Ile Gln
            85              90              95
Glu Lys Glu Lys Gln Leu Gln Glu Leu Lys Leu Lys Val Ser Asp Leu
            100             105             110
Ser Asp Thr Arg Cys Lys Leu Glu Val Glu Leu Ala Leu Lys Glu Ala
        115             120             125
Glu Thr Asp Glu Ile Lys Ile Leu Leu Glu Glu Ser Arg Ala Gln Gln
        130             135             140
Lys Glu Thr Leu Lys Ser Leu Leu Glu Gln Glu Thr Glu Asn Leu Arg
145             150             155             160
Thr Glu Ile Ser Lys Leu Asn Gln Lys Ile Gln Asp Asn Asn Glu Asn
            165             170             175
Tyr Gln Val Gly Leu Ala Glu Leu Arg Thr Leu Met Thr Ile Glu Lys
            180             185             190
Asp Gln Cys Ile Ser Glu Leu Ile Ser Xaa His Glu Glu Glu Ser Asn
        195             200             205
Ile Leu Lys Ala Glu Xaa Asn Lys Ser Tyr Ile Phe Cys Ile Thr Gln
    210             215             220
Pro Phe Xaa Ile Glu Lys Asn Leu Lys Glu Pro Ile Xaa
225             230             235

        <210> 998
        <211> 278
        <212> PRT
        <213> Homo sapiens

        <400> 998
Thr Ile His Gln Val Ser Leu Asp Leu Asp Ser Leu Ala Glu Ser Pro
 1               5               10              15
Glu Ser Asp Phe Met Ser Ala Val Asn Glu Phe Val Ile Glu Glu Asn
            20              25              30
Leu Ser Ser Pro Asn Pro Ile Ser Asp Pro Gln Ser Pro Glu Met Met
        35              40              45
Val Glu Ser Leu Tyr Ser Ser Val Ile Asn Ala Ile Asp Ser Arg Arg
    50              55              60
Met Gln Asp Thr Asn Val Cys Gly Lys Glu Asp Phe Gly Asp His Thr
65              70              75              80
Ser Leu Asn Val Gln Leu Glu Arg Cys Arg Val Val Ala Gln Asp Ser
            85              90              95
His Phe Ser Ile Gln Thr Ile Lys Glu Asp Leu Cys His Phe Arg Thr
        100             105             110
Phe Val Gln Lys Glu Gln Cys Asp Phe Ser Asn Ser Leu Lys Cys Thr
```

```
                    115                          120                         125
         Ala Val Glu Ile Arg Asn Ile Ile Glu Lys Val Lys Cys Ser Leu Glu
                130                          135                  140
         Ile Thr Leu Lys Glu Lys His Gln Lys Glu Leu Leu Ser Leu Lys Asn
  5      145                          150                  155                  160
         Glu Tyr Glu Gly Lys Leu Asp Gly Leu Ile Lys Glu Thr Glu Glu Asn
                          165                  170                  175
         Glu Asn Lys Ile Lys Lys Leu Lys Gly Glu Leu Val Cys Leu Glu Glu
                     180                  185                  190
 10      Val Leu Gln Asn Lys Asp Asn Glu Phe Ala Leu Val Lys His Glu Lys
                     195                  200                  205
         Glu Ala Val Ile Cys Leu Gln Asn Glu Lys Asp Gln Lys Leu Xaa Glu
                210                  215                  220
         Met Glu Asn Ile Met Pro Ser Gln Asn Trp Glu Ile Xaa Glu Leu Lys
 15      225                  230                  235                  240
         Gln Ser Arg Glu Ile Gly Leu Glu Asp Leu Lys Lys Leu Met Trp Lys
                          245                  250                  255
         Met Met Arg Ser Xaa Gly Phe Gly Gly Xaa Thr Xaa Val Leu Gly Pro
                     260                  265                  270
 20      Lys Ser Xaa Xaa Gly Ile
                     275


                 <210> 999
                 <211> 168
 25              <212> PRT
                 <213> Homo sapiens


                 <400> 999
         Xaa Xaa Xaa His Glu Glu Glu Xaa Asn Xaa Leu Lys Gly Glu Leu Asn
 30      1                   5                   10                  15
         Lys Xaa Thr Ser Leu His Asn Gln Ala Phe Glu Ile Glu Lys Xaa Leu
                     20                  25                  30
         Lys Xaa Gln Ile Ile Xaa Leu Xaa Ser Lys Xaa Asp Ser Xaa Leu Xaa
                     35                  40                  45
 35      Ala Xaa Glu Ser Gln Lys Asp Glu Lys Ile Xaa Pro Gln Glu Glu Lys
                50                  55                  60
         Xaa Glu Xaa Xaa Xaa Gln Thr Leu Glu Lys Xaa Ser Gln Lys Leu Val
         65                  70                  75                  80
         Xaa Ser Gln Glu Gln Xaa Xaa Xaa Gln Leu Ile Gln Lys Xaa Asn Cys
 40      85                  90                  95
         Glu Lys Xaa Glu Ala Ile Gln Xaa Ala Leu Lys Xaa Phe Lys Leu Xaa
                     100                 105                 110
         Xaa Xaa Val Val Xaa Lys Xaa Xaa Leu Glu Lys Val Xaa Xaa Xaa Glu
                     115                 120                 125
 45      Asn Gln Xaa Ala Lys Ser Pro Ala Xaa Asp Xaa Xaa Xaa Gly Asp Phe
                130                 135                 140
         Ser Ser Leu Xaa Xaa Glu Leu Gln Xaa Lys Leu Gln Glu Xaa Lys Xaa
         145                 150                 155                 160
         Lys Phe Leu Xaa Xaa Leu Glu Glu
 50                       165


                 <210> 1000
                 <211> 194
 55              <212> PRT
                 <213> Homo sapiens


                 <400> 1000
         Glu Gly Lys Leu Gln Lys Ala Leu Glu Asp Ala Phe Leu Ala Ile Asp
         1                   5                   10                  15
 60      Ala Lys Leu Thr Thr Glu Glu Val Ile Lys Glu Leu Ala Gln Ile Ala
                     20                  25                  30
         Gly Arg Pro Thr Glu Asp Glu Asp Glu Lys Glu Lys Val Ala Asp Glu
                     35                  40                  45
```

```
        Asp Asp Val Asp Asn Glu Glu Ala Ala Leu Leu His Glu Glu Ala Thr
            50              55                  60
        Met Thr Ile Glu Glu Leu Leu Thr Arg Tyr Gly Gln Asn Cys His Lys
        65              70                  75                      80
  5     Gly Pro Pro His Ser Lys Ser Gly Gly Thr Gly Glu Glu Pro Gly
                    85              90                  95
        Ser Gln Gly Leu Asn Gly Glu Ala Gly Pro Glu Asp Ser Thr Arg Glu
                    100             105                 110
        Thr Pro Ser Gln Glu Asn Gly Pro Thr Ala Lys Ala Tyr Thr Gly Phe
 10             115                 120                 125
        Ser Ser Asn Ser Glu Arg Gly Thr Glu Ala Gly Gln Val Gly Glu Pro
            130                 135                 140
        Gly Ile Pro Thr Gly Glu Ala Gly Pro Ser Cys Ser Ser Ala Ser Asp
        145             150                 155                     160
 15     Lys Leu Leu Glu Leu Leu Ser Pro Ser Ser Leu Arg Thr Val Arg Met
                    165             170                 175
        Ser Gln Met Lys Arg Arg Lys Lys Lys Thr Val Arg Asn Ala Ala
                    180             185                 190
        Arg Lys
 20


                <210> 1001
                <211> 73
                <212> PRT
 25             <213> Homo sapiens


                <400> 1001
        Arg Val Ser Ser Ser Ser Ile Val Met Val Ala Ser Ser Cys Ser Ser
            1               5                   10                  15
 30     Ala Ala Ser Ser Leu Ser Thr Ser Ser Ser Ser Ala Thr Phe Ser Phe
                    20                  25                  30
        Ser Ser Ser Ser Ser Val Gly Arg Pro Ala Ile Cys Ala Ser Ser Leu
                    35                  40                  45
        Met Thr Ser Ser Val Val Asn Leu Ala Ser Ile Ala Lys Lys Ala Ser
 35         50                  55                  60
        Ser Lys Ala Phe Cys Ser Leu Pro Ser
        65                  70


                <210> 1002
 40             <211> 121
                <212> PRT
                <213> Homo sapiens


                <400> 1002
 45     His Lys Xaa Val Xaa Phe Thr Glu Ala Xaa Asn Ser Trp Ser Leu Pro
        1               5                   10                  15
        Gly Gly Xaa Trp Asn Val Met Thr Thr Gln Lys Val Val Asp Phe Ile
                    20                  25                  30
        Gln Ser Lys Ile Ser Gln Ala Xaa Glu Asn Gly Lys Phe Gly Ile Val
 50             35                  40                  45
        Ile His Cys Glu Xaa Leu Leu Asp Gln Cys Xaa Ala Pro Asp Thr Phe
            50                  55                  60
        Gly Asp Gly Thr Gly Cys Asp Asn Met Thr Cys Ile Ile Ile Xaa Phe
        65                  70                  75                      80
 55     Lys Pro Arg Asn Thr Ala Glu Leu Gln Pro Glu Ser Gly Lys Arg Lys
                    85                  90                  95
        Leu Glu Glu Val Leu Ser Thr Glu Gly Ala Glu Glu Asn Gly Asn Ser
                    100                 105                 110
        Asp Lys Lys Lys Lys Ala Lys Arg Asp
 60             115                 120


                <210> 1003
                <211> 122
```

380

```
          <212> PRT
          <213> Homo sapiens


          <400> 1003
   5  Arg Arg Cys Ser Leu Leu Arg Gly Leu Lys Lys Met Ala Thr Ala Thr
       1               5                   10              15
      Arg Arg Arg Arg Pro Ser Glu Thr Ser Ser His Pro Asp Pro Cys Pro
               20              25              30
      Pro Arg Leu Phe Xaa Glu Pro Ser Gly Pro Glu Thr Glu Phe Cys Leu
  10           35              40              45
      Phe Pro Leu Ala Leu Ala Val Gly Xaa Arg Cys Ala Gly Gly Ala Gly
           50              55              60
      Trp Leu His Ser Ala His Ser Lys Glu Gly Ser Pro Ser Thr Leu Gln
      65              70              75              80
  15  Pro Gly Ala Xaa Ala Val Leu Pro Ser Arg Xaa Cys Ser Ser Gly Ser
               85               90              95
      Ser Pro Val Leu Cys Leu Cys Ser Val Val Leu Glu Gly Arg Thr Gly
               100             105             110
      Gly Ser Gly Phe Tyr Ser Val Asn Phe Ile
  20           115             120


          <210> 1004
          <211> 176
          <212> PRT
  25      <213> Homo sapiens


          <400> 1004
      Ala Ala Gln Leu Arg Met Val Asp Asp Gly Ser Gly Lys Val Glu Val
       1               5                   10              15
  30  Trp Cys Ile Gln Asp Leu His Arg Gln Pro Val Asp Pro Lys Arg His
               20              25              30
      Gly Gln Leu Cys Ala Gly Asn Cys Tyr Leu Val Leu Tyr Thr Tyr Gln
               35              40              45
      Arg Leu Gly Arg Val Gln Tyr Ile Leu Tyr Leu Trp Gln Gly His Gln
  35           50              55              60
      Ala Thr Ala Asp Xaa Ile Glu Ala Leu Asn Ser Asn Ala Glu Glu Leu
      65              70              75              80
      Asp Val Met Tyr Gly Gly Val Leu Val Gln Glu His Val Thr Met Gly
               85              90              95
  40  Ser Glu Pro Pro His Phe Leu Ala Ile Phe Gln Gly Gln Leu Val Ile
               100             105             110
      Phe Gln Glu Arg Ala Gly His His Gly Lys Gly Gln Ser Ala Ser Thr
               115             120             125
      Thr Arg Leu Phe Gln Val Gln Gly Thr Asp Ser His Asn Thr Arg Thr
  45           130             135             140
      Met Glu Val Pro Ala Arg Ala Ser Ser Leu Asn Ser Ser Asp Ile Phe
      145             150             155             160
      Leu Leu Val Thr Ser Gln Arg Leu Leu Pro Leu Val Trp Glu Gly Leu
                   165             170             175
  50
          <210> 1005
          <211> 143
          <212> PRT
          <213> Homo sapiens
  55
          <400> 1005
      Pro Pro Pro Val Pro Ser His Val Asp His His Tyr Ser Pro Ser Gln
       1               5                   10              15
      Thr Arg Gly Ser Arg Arg Trp Leu Val Thr Ser Lys Lys Met Ser Leu
  60           20              25              30
      Glu Leu Arg Asp Glu Ala Arg Ala Gly Thr Ser Met Val Leu Val Leu
               35              40              45
      Trp Leu Ser Val Pro Cys Thr Trp Lys Ser Leu Val Val Asp Ala Asp
```

```
             50                    55                      60
    Cys Pro Phe Pro Trp Cys Pro Ala Leu Ser Trp Lys Ile Thr Ser Trp
    65                    70                  75                    80
    Pro Trp Lys Met Ala Arg Lys Trp Gly Gly Ser Leu Pro Met Val Thr
                         85                  90                    95
    Cys Ser Cys Thr Arg Thr Pro Pro Tyr Met Thr Ser Ser Ser Ser Ala
                    100                 105                 110
    Leu Leu Phe Arg Ala Ser Xaa Ser Ser Ala Val Ala Trp Trp Pro Cys
                115                 120                 125
    His Arg Tyr Arg Met Tyr Trp Thr Arg Pro Ser Leu Trp Tyr Val
            130                 135                 140
```

```
        <210> 1006
        <211> 145
        <212> PRT
        <213> Homo sapiens
```

```
        <400> 1006
    Pro Xaa Val Pro Gln Glu Ser Gly Glu Trp Gln Pro Gly Lys Gln His
    1               5                   10                  15
    Gln Pro Xaa Phe Glu Ile Thr Ala Glu Val Asn Asn Leu Gly Leu Ser
                20                  25                  30
    Xaa Trp Pro Gly Asn Gly Arg Ala Gly Ala Val Ala Leu Gln Ala Leu
                35                  40                  45
    Lys Gly Ser Gln Asp Ser Ser Xaa Asn Asp Leu Val Arg Ser Pro Lys
            50                  55                  60
    Ser Ala Gly Ser Arg Thr Ser Xaa Ser Val Ser Ser Thr Xaa Ala Thr
    65                  70                  75                    80
    Ile Asn Gly Gly Leu Arg Arg Glu Gln Xaa Met His Gln Ala Val Glu
                    85                  90                  95
    Asp Leu Pro Xaa Xaa Val Asp Pro Ala Arg Arg Glu Phe Tyr Xaa Ser
                100                 105                 110
    Asp Xaa Asp Phe Gln Asp Xaa Phe Gly Lys Ser Lys Glu Glu Phe Tyr
            115                 120                 125
    Ser Met Ala Thr Trp Arg Gln Arg Gln Glu Lys Lys Gln Leu Gly Phe
            130                 135                 140
    Phe
    145
```

```
        <210> 1007
        <211> 98
        <212> PRT
        <213> Homo sapiens
```

```
        <400> 1007
    Cys Thr Arg Leu Leu Arg Thr Cys Xaa Arg Xaa Trp Thr Leu Pro Ala
    1               5                   10                  15
    Gly Ser Ser Xaa Xaa Gln Thr Xaa Thr Ser Lys Ile Xaa Leu Gly Asn
                20                  25                  30
    Pro Arg Arg Asn Phe Thr Ala Trp Pro Arg Gly Gly Ser Gly Arg Arg
            35                  40                  45
    Lys Ser Ser Trp Ala Phe Phe Glu Pro Lys Pro Xaa Arg Leu Pro Leu
            50                  55                  60
    Ser Pro Gly Pro Gln His Thr Tyr Asn Ala Gly Glu Ala Leu Leu Pro
    65                  70                  75                    80
    Leu Pro Ser Xaa Ala Phe Gly His Pro Leu Xaa Val Ser Lys Ser Arg
                    85                  90                  95
    Gln Pro
```

```
        <210> 1008
        <211> 65
        <212> PRT
```

```
        <213> Homo sapiens

        <400> 1008
    Ser Thr Cys Arg Gly Pro Lys Val Xaa Asn His Pro Met Lys Gly Gly
    1               5                   10                  15
    Glu Ala Leu Trp Pro Cys Leu Xaa Xaa Thr Asn Xaa Cys Xaa Pro Gly
                20                  25                  30
    Phe Leu Pro Leu Xaa Gly Xaa Lys Ser Phe Lys Xaa Thr Ser Leu Xaa
                35                  40                  45
    Pro Lys Ala Asn Pro Pro Xaa Phe Pro Xaa Xaa Phe Cys Xaa Phe Ser
        50                  55                  60
    Pro
    65


        <210> 1009
        <211> 193
        <212> PRT
        <213> Homo sapiens


        <400> 1009
    Tyr Leu Val Ala Leu Asp Lys Leu Asn Pro Tyr Thr Leu Tyr Thr Phe
    1               5                   10                  15
    Arg Ile Arg Cys Ser Thr Glu Thr Phe Trp Lys Trp Ser Lys Trp Ser
                20                  25                  30
    Asn Lys Lys Gln His Leu Thr Thr Glu Ala Ser Pro Ser Lys Gly Pro
                35                  40                  45
    Asp Thr Trp Arg Glu Trp Ser Ser Asp Gly Lys Asn Leu Ile Ile Tyr
        50                  55                  60
    Trp Lys Pro Leu Pro Ile Asn Glu Ala Asn Gly Lys Ile Leu Ser Tyr
    65                  70                  75                  80
    Asn Val Ser Cys Ser Ser Asp Glu Glu Thr Gln Ser Leu Ser Glu Ile
                85                  90                  95
    Pro Asp Pro Gln His Lys Ala Glu Ile Arg Leu Asp Lys Asn Asp Tyr
                100                 105                 110
    Ile Ile Ser Val Val Ala Lys Asn Ser Val Gly Ser Ser Pro Pro Ser
                115                 120                 125
    Lys Ile Ala Ser Met Glu Ile Pro Asn Asp Asp Leu Lys Ile Glu Gln
        130                 135                 140
    Val Val Gly Met Gly Lys Gly Ile Leu Leu Thr Trp His Tyr Asp Pro
    145                 150                 155                 160
    Asn Met Thr Cys Asp Tyr Val Ile Lys Trp Cys Asn Ser Ser Arg Ser
                165                 170                 175
    Glu Pro Cys Leu Met Asp Trp Arg Lys Val Pro Gln Thr Ala Leu Lys
                180                 185                 190
    Leu


        <210> 1010
        <211> 135
        <212> PRT
        <213> Homo sapiens


        <400> 1010
    Xaa Phe Pro Arg Asn Val Phe Pro Phe Xaa Leu Xaa Ile Glu Ser Ala
    1               5                   10                  15
    Xaa Val Ser Phe Thr Ser Lys Phe Gly His Gln Trp Glu Pro Ile Xaa
                20                  25                  30
    Leu Tyr Ile Gln Ser Trp Ser Val Ile Ile Asp Ile Leu Asp Phe Cys
                35                  40                  45
    Ile His Thr Gly Lys Asn Tyr Ile Leu Tyr Leu Val Glu Thr His Gln
        50                  55                  60
    Ile Leu Leu Gln Phe Gln Cys Cys Leu Arg Asn Phe Ser Pro Val His
    65                  70                  75                  80
```

```
        Lys Ala Trp Phe Arg Pro Arg Arg Val Thr Pro Leu Asn Asp Val Val
                        85                  90              95
        Ala Ser His Val Gly Val Val Met Pro Gly Glu Glu Asn Pro Leu Ser
                    100             105             110
   5    His Pro Asn Asn Leu Phe Tyr Phe Glu Ile Ile Ile Trp Asn Phe His
                115                 120             125
        Thr Arg Tyr Phe Gly Arg Trp
            130                 135


  10            <210> 1011
                <211> 80
                <212> PRT
                <213> Homo sapiens


  15            <400> 1011
        Xaa Asn His Xaa Thr Arg Gly Lys Arg Pro Lys Val Xaa Trp Ile Trp
         1               5               10              15
        Ser Pro Arg Gly Xaa Xaa Xaa Val Gly Cys Xaa Pro Ser Gln Gly Ile
                    20              25              30
  20    Leu Pro Leu Trp Xaa Met Ser Xaa His Ser Glu Ser Phe Pro Gln Pro
                    35              40              45
        Pro Xaa Leu Val Pro Ser Ser His Phe Lys Tyr Lys Thr Lys Xaa Arg
                50              55              60
        Met Leu Leu Thr Gly Pro Val Pro Lys Gly Cys Phe Leu Glu Leu Ser
  25    65                  70              75                  80


                <210> 1012
                <211> 77
                <212> PRT
  30            <213> Homo sapiens


                <400> 1012
        Xaa Leu Thr Ile Xaa Pro Gly Val Ser Gly Gln Lys Xaa Asp Gly Phe
         1               5               10                  15
  35    Gly Pro Pro Glu Glu Xaa Xaa Pro Trp Val Xaa Pro Gln Ala Arg Val
                    20              25              30
        Phe Cys Pro Phe Xaa Xaa Cys Xaa Pro Thr Gln Ser Leu Phe Leu Ser
                    35              40              45
        Pro His Xaa Leu Ser Arg Pro His Ile Leu Asn Ile Lys Leu Xaa Arg
  40        50              55              60
        Glu Cys Phe Leu Gln Asp Gln Tyr Pro Arg Ala Val Ser
        65                  70              75


                <210> 1013
  45            <211> 117
                <212> PRT
                <213> Homo sapiens


                <400> 1013
  50    Leu Ile His Tyr Leu Gln Ile His Tyr Arg Ile Ser Asp Asp Lys Lys
         1               5               10                  15
        Gln Thr Thr Asn Gln Lys Lys Gln Thr Lys Lys Thr Tyr Leu Ile Arg
                    20              25              30
        Thr Leu Lys Ile Phe Lys Tyr Phe Cys Leu Lys Tyr Glu Lys Val Lys
  55                35              40              45
        Tyr Ile Gly Asn Leu Arg Ala Gly Lys Ile Gln Asp His Phe Leu Val
                50              55              60
        Phe Pro Ser Ala Phe Pro Arg Thr Thr Ile Thr Pro Asp Ile Ala Tyr
  65    65                  70              75                  80
  60    Glu Lys Gln Gly Trp Ala Glu Asp Ala Val Leu Lys Ala Ile Asn Ser
                        85                  90                  95
        Ala Gln Leu Thr Lys Gln Leu Leu Pro Cys Asn Thr Gly Cys Pro Trp
                    100             105             110
```

```
Ile Gln Ile Ser Leu
        115


        <210> 1014
        <211> 212
        <212> PRT
        <213> Homo sapiens


        <400> 1014
Ile Ser Asp Asn Ser Lys Ile Asn Phe Arg Leu Lys Pro Leu Asp Val
1               5                   10                  15
Ala Phe Met Lys Ala Ile His Asn Lys Val Asn Ile Val Pro Val Ile
            20                  25                  30
Ala Lys Ala Asp Thr Leu Thr Leu Lys Glu Arg Glu Arg Leu Lys Lys
            35                  40                  45
Arg Ile Leu Asp Glu Ile Glu Glu His Asn Ile Lys Ile Tyr His Leu
        50                  55                  60
Pro Asp Ala Glu Ser Asp Glu Asp Glu Asp Phe Lys Glu Gln Thr Arg
65                  70                  75                  80
Leu Leu Lys Ala Ser Ile Pro Phe Ser Val Val Gly Ser Asn Gln Leu
            85                  90                  95
Ile Glu Ala Lys Gly Lys Lys Val Arg Gly Arg Leu Tyr Pro Trp Gly
            100                 105                 110
Val Val Glu Val Glu Asn Pro Glu His Asn Asp Phe Leu Lys Leu Arg
            115                 120                 125
Thr Met Leu Ile Thr His Met Gln Asp Leu Gln Glu Val Thr Gln Asp
            130                 135                 140
Leu His Tyr Glu Asn Phe Arg Ser Glu Arg Leu Lys Arg Gly Gly Arg
145                 150                 155                 160
Lys Val Glu Asn Glu Asp Met Asn Lys Asp Gln Ile Leu Leu Glu Lys
                165                 170                 175
Glu Ala Glu Leu Arg Arg Met Gln Xaa Met Ile Ala Arg Met Gln Ala
            180                 185                 190
Pro Asn Ala Asp Ala Xaa Cys Xaa Ala Gly Asp Gly Xaa Gly Gly Ala
            195                 200                 205
Phe Arg Ala Thr
        210


        <210> 1015
        <211> 143
        <212> PRT
        <213> Homo sapiens


        <400> 1015
Gly Gly Pro Lys Ser Pro Ala Xaa Ala Ile Pro Gly Xaa Ala Xaa Gly
1               5                   10                  15
Ile Cys Ile Trp Gly Leu His Pro Cys Asn His Xaa Leu His Ala Ala
            20                  25                  30
Glu Leu Ser Phe Phe Phe Gln Gln Asp Leu Val Phe Ile His Val Leu
            35                  40                  45
Ile Leu His Phe Pro Ala Ala Ser Leu Glu Ser Leu Arg Thr Glu Val
        50                  55                  60
Phe Ile Met Lys Val Leu Gly His Leu Leu Glu Ile Leu His Val Gly
65                  70                  75                  80
Asp Glu His Gly Ser Gln Leu Gln Lys Val Ile Val Leu Trp Val Leu
                85                  90                  95
His Phe His Asn Thr Pro Gly Val Glu Ala Ala Ser Asp Leu Leu Ser
            100                 105                 110
Phe Gly Phe Asn Gln Leu Ile Gly Ser Asn His Arg Glu Trp Asp Ala
            115                 120                 125
Ser Leu Glu Lys Ser Ser Leu Leu Phe Lys Ile Phe Ile Phe Ile
        130                 135                 140
```

```
        <210> 1016
        <211> 120
        <212> PRT
        <213> Homo sapiens

        <400> 1016
His Thr Phe Ile Asn Tyr Tyr Tyr Leu Thr Ala Ser Phe Tyr Gly Phe
1               5                   10                  15
Ser Ser Pro His Lys Asn Glu Lys Thr Leu Ser His Pro Gln Ile Lys
            20                  25                  30
His Phe Leu His Leu Pro Thr Gln Pro Leu Ala Pro Phe Ile Trp Gln
        35                  40                  45
Phe Leu Gly Gly Glu Phe Pro Thr Ser Val Xaa Met Asp Xaa Lys Arg
    50                  55                  60
His Pro Leu Glu Xaa Ser Leu Arg Gly Pro Gln Xaa Lys Xaa Gly Thr
65                  70                  75                  80
Leu Arg Xaa Pro Gly Xaa Xaa Lys Thr Lys Pro Gly Xaa Gly Xaa Asn
            85                  90                  95
Gly Ala Asp Leu Ala Pro Tyr Pro Leu Leu Gln Asn Leu Lys Xaa Val
            100                 105                 110
Phe Pro Phe Asp Leu Ala Xaa Arg
        115                 120


        <210> 1017
        <211> 111
        <212> PRT
        <213> Homo sapiens

        <400> 1017
Val Phe Ser Lys Tyr Ile Ser Ile Gly Arg Asp Tyr Val Leu Val Lys
1               5                   10                  15
Glu Gln Leu Ser Ile Ile Lys Ser Ile Tyr Leu Asp Leu Gly Ser Lys
            20                  25                  30
Thr Lys Gly Asp Gln Lys Cys Ser Ser Val Gly Pro Pro Ser Leu His
        35                  40                  45
Ser Cys Tyr Gln Glu Ala Ala Cys Leu Lys Tyr Phe His Ser His Met
    50                  55                  60
Arg Gly Leu Val Thr Ser Lys Leu Val Phe Leu Phe Tyr Arg Phe Ser
65                  70                  75                  80
Ser Lys Val Ile Lys Cys Gln Thr Gln Ile Met Asp Ser Ala Trp Met
            85                  90                  95
Tyr Ser Glu Val Met Glu His His Phe Leu Val Thr Phe Thr Gln
            100                 105                 110


        <210> 1018
        <211> 219
        <212> PRT
        <213> Homo sapiens

        <400> 1018
Arg Glu Arg Val Thr Gln Ser Ala Leu Val Pro Val Leu Ala Met Ala
1               5                   10                  15
Ser Phe Val Thr Glu Val Leu Ala His Ser Gly Arg Leu Glu Lys Glu
            20                  25                  30
Asp Leu Gly Thr Arg Ile Ser Arg Leu Thr Arg Arg Val Glu Glu Ile
            35                  40                  45
Lys Gly Glu Val Cys Asn Met Ile Ser Lys Lys Tyr Ser Glu Phe Leu
        50                  55                  60
Pro Ser Met Gln Ser Ala Gln Gly Leu Ile Thr Gln Val Asp Lys Leu
65                  70                  75                  80
Ser Glu Asp Ile Asp Leu Leu Lys Ser Arg Ile Glu Ser Glu Val Arg
            85                  90                  95
Arg Asp Leu His Val Ser Thr Gly Glu Phe Thr Asp Leu Lys Gln Gln
```

```
                    100                    105                    110
        Leu Glu Arg Asp Ser Val Val Leu Ser Leu Leu Lys Gln Leu Gln Glu
                115                    120                    125
        Phe Ser Thr Ala Ile Glu Glu Tyr Asn Cys Ala Leu Thr Glu Lys Lys
   5            130                    135                    140
        Tyr Val Thr Gly Ala Gln Arg Leu Glu Glu Ala Gln Lys Cys Leu Lys
        145                    150                    155                    160
        Leu Leu Lys Ser Arg Lys Cys Phe Asp Leu Lys Ile Leu Lys Ser Leu
                165                    170                    175
  10    Ser Met Glu Leu Thr Ile Gln Glu Thr Glu His Thr Leu Ser Pro Trp
                180                    185                    190
        Arg Arg Val Ala Glu Ala Asp Cys Met Glu Val Pro Thr Ile Lys Arg
                195                    200                    205
        Tyr Gln Pro Val Trp Glu Ser Leu Pro Tyr Lys
  15    210                    215


              <210> 1019
              <211> 99
              <212> PRT
  20          <213> Homo sapiens


              <400> 1019
        Arg Ser Arg Arg Thr Ser Leu Ser Ile Leu Asp Phe Ser Arg Ser Met
        1               5                    10                    15
  25    Ser Ser Asp Ser Leu Ser Thr Trp Val Ile Arg Pro Cys Ala Leu Cys
                20                    25                    30
        Met Leu Gly Arg Asn Ser Leu Tyr Phe Leu Leu Ile Ile Leu His Thr
                35                    40                    45
        Ser Pro Leu Ile Ser Ser Thr Arg Arg Val Arg Arg Leu Ile Arg Val
  30        50                    55                    60
        Pro Arg Ser Ser Phe Ser Ser Leu Pro Glu Cys Ala Lys Thr Ser Val
        65                    70                    75                    80
        Thr Asn Glu Ala Met Ala Lys Thr Gly Thr Asn Ala Asp Trp Val Thr
                        85                    90                    95
  35    Leu Ser Leu


              <210> 1020
              <211> 131
  40          <212> PRT
              <213> Homo sapiens


              <400> 1020
        Ser Gln Thr Ser Lys Met Tyr Trp Phe Thr Lys Thr Asn Gly Arg Phe
  45    1               5                    10                    15
        Lys Glu Val Phe Lys Gly Xaa Ile Met Pro Arg Glu Glu Ser Thr Tyr
                20                    25                    30
        Ser Arg His Ser Phe Leu Lys Lys Met Glu Leu Phe Asn Phe Ser Lys
                35                    40                    45
  50    Gly Ser Cys Ser Ser Phe Leu Cys Leu Lys Gln Gly Arg Ile Lys Ala
                50                    55                    60
        Leu Leu His Trp Lys Xaa Thr His Cys Gln Gly Xaa Phe Xaa Ile Trp
        65                    70                    75                    80
        Pro Thr Asp Pro Asn Xaa Leu Pro Ser Trp Leu Trp Glu Pro Ser Ser
  55                    85                    90                    95
        Ser Asn Ser Leu Glu Trp Leu Pro Phe Leu Ala His Xaa Thr Gly Asn
                        100                    105                    110
        Leu Phe Leu Lys Phe Xaa Gly Ala Trp Leu Ser Ser Lys Xaa Lys Gly
                115                    120                    125
  60    Gln Xaa Pro
                130


              <210> 1021
```

```
              <211> 222
              <212> PRT
              <213> Homo sapiens

              <400> 1021
    Pro Leu Glu Pro Ala Val Gly Pro Lys Ala Ala Cys Pro Leu Asp Ser
    1               5                   10                  15
    Glu Ser Ala Glu Gly Val Val Pro Pro Ala Ser Gly Gly Gly Arg Val
                20                  25                  30
    Gln Asn Ser Pro Pro Val Gly Arg Lys Thr Leu Pro Leu Thr Thr Ala
                35                  40                  45
    Pro Glu Ala Gly Glu Val Thr Pro Ser Asp Ser Gly Gly Gln Glu Asp
            50                  55                  60
    Ser Pro Ala Lys Gly Leu Ser Val Arg Leu Glu Phe Asp Tyr Ser Glu
    65                  70                  75                  80
    Asp Lys Ser Ser Trp Asp Asn Gln Gln Glu Asn Pro Pro Pro Thr Lys
                    85                  90                  95
    Lys Ile Gly Lys Lys Pro Val Ala Lys Met Pro Leu Arg Arg Pro Lys
                    100                 105                 110
    Met Lys Lys Thr Pro Glu Lys Leu Asp Asn Thr Pro Ala Ser Pro Pro
                115                 120                 125
    Arg Ser Pro Ala Glu Pro Asn Asp Ile Pro Ile Ala Lys Gly Thr Tyr
            130                 135                 140
    Thr Phe Asp Ile Asp Lys Trp Asp Asp Pro Asn Phe Asn Pro Phe Ser
    145                 150                 155                 160
    Ser Thr Ser Lys Met Gln Glu Ser Pro Lys Leu Pro Gln Gln Ser Tyr
                    165                 170                 175
    Asn Phe Asp Pro Asp Thr Cys Asp Glu Ser Val Asp Pro Phe Lys Thr
                180                 185                 190
    Ser Ser Lys Pro Pro Ala His Leu Leu Asn Pro Gln Pro Ser Phe Glu
                195                 200                 205
    Ile Pro Ala Ser Ala Ile Gly Ser Gln Trp Ser Gly Pro Gly
            210                 215                 220


              <210> 1022
              <211> 249
              <212> PRT
              <213> Homo sapiens

              <400> 1022
    Leu Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Asn Ile Xaa Xaa Ile
    1               5                   10                  15
    Cys Xaa Gly Xaa Gln Trp Xaa Xaa Arg Xaa Asn Xaa Xaa Xaa Xaa Xaa
                20                  25                      30
    His Xaa Xaa Leu Xaa Xaa Xaa Ile Xaa Xaa Xaa Gly Xaa Xaa Met Xaa
                35                  40                  45
    Xaa Xaa Xaa Xaa Xaa Xaa Xaa Cys Met Xaa Xaa Cys Xaa Leu Xaa Xaa
            50                  55                  60
    Trp Gln Xaa Val Trp Xaa Arg Gln Ala Glu Ser Ala Cys Leu Leu Ile
    65                  70                  75                  80
    His Xaa Cys Met Asn Xaa Pro Ala Leu Xaa Xaa Tyr Ser Xaa Arg Xaa
                    85                  90                  95
    Cys Ser Phe Arg Asn Ala Gly Leu Val Gly Gly Leu Xaa Xaa Xaa Xaa
                100                 105                 110
    Xaa Ala Ser Asn Leu Xaa Asn Val Xaa Xaa Ala Pro Xaa Gln Xaa Xaa
            115                 120                 125
    Xaa Arg Val His Leu Xaa Gly Xaa Val Xaa Xaa Leu Leu Leu Leu Arg
            130                 135                 140
    Leu Gly Xaa Thr Xaa Xaa Cys Glu His Thr Phe Thr His Xaa Xaa Ile
    145                 150                 155                 160
    Leu Ala Glu Xaa Leu Xaa Arg Thr Gly Pro Ile Xaa Xaa Ile Ser Ser
                165                 170                 175
    Ile Xaa Gly Xaa Pro Arg Xaa Leu Phe His Arg Xaa Leu Xaa Xaa Xaa
                            398
```

```
                         180                     185                     190
          Xaa Arg Leu Ala Xaa Phe Leu Xaa Lys Pro Ser Leu Val Xaa Xaa Pro
                    195                     200                     205
          Leu Xaa Gly Xaa Xaa Xaa Leu Xaa Phe Leu Gly Asp Xaa Pro Leu Tyr
   5            210                     215                     220
          Xaa Xaa Xaa Xaa Gln Trp Xaa Leu Phe Xaa Xaa Phe Xaa Pro Ile Phe
          225                     230                     235                 240
          Xaa Pro Xaa Ile Phe Xaa His Leu Tyr
                         245
  10
                  <210> 1023
                  <211> 231
                  <212> PRT
                  <213> Homo sapiens
  15
                  <400> 1023
          Leu Gln Arg Leu Phe Glu Glu Phe Arg Asp Ser Asp Asp Val Leu Gly
            1               5                     10                      15
          His Ile Met Lys Asn Ile Thr Ala Lys Arg Ser Arg Ala Arg Ile Val
  20                20                      25                      30
          Asp Lys Leu Leu Ala Leu Gly Leu Val Ala Glu Arg Arg Glu Leu Tyr
                    35                      40                      45
          Lys Lys Arg Gln Lys Lys Leu Ala Ser Ser Ile Leu Pro Asn Gly Ala
                50                      55                      60      ·
  25      Glu Ser Leu Lys Asp Phe Cys Gln Glu Asp Leu Glu Glu Glu Glu Asn
          65                      70                      75                  80
          Leu Pro Glu Glu Asp Ser Glu Glu Glu Glu Gly Gly Ser Glu Ala
                            85                      90                      95
          Glu Gln Val Gln Gly Ser Leu Val Leu Ser Asn Glu Asn Leu Gly Gln
  30                100                     105                     110
          Ser Leu His Gln Glu Gly Phe Ser Ile Pro Leu Leu Trp Leu Gln Asn
                    115                     120                     125
          Cys Leu Ile Arg Ala Ala Asp Asp Arg Glu Glu Asp Gly Cys Ser Gln
                130                     135                     140
  35      Ala Val Pro Leu Val Pro Leu Thr Glu Glu Asn Glu Glu Ala Met Glu
          145                     150                     155                 160
          Asn Glu Gln Phe Gln Gln Leu Leu Arg Lys Leu Gly Val Arg Pro Pro
                            165                     170                     175
          Ala Ser Gly Gln Glu Thr Phe Trp Arg Ile Pro Ala Lys Leu Ser Pro
  40                180                     185                     190
          Thr Gln Leu Arg Arg Ala Ala Ala Ser Phe Glu Ser Thr Arg Gly Gly
                    195                     200                     205
          Thr Glu Thr Cys Ser Gln Asn Cys Ser Leu Lys Xaa Leu Glu Ser Lys
                210                     215                     220
  45      Ala Leu Met Lys Ser Thr Cys
          225                     230


                  <210> 1024
                  <211> 116
  50              <212> PRT
                  <213> Homo sapiens


                  <400> 1024
          Ile Arg Glu Xaa Ala Trp Asp Ser Thr Ala Leu Ser Ser Xaa Arg Ser
  55        1               5                     10                      15
          Phe Trp Val Leu Tyr Asp Pro Ser Asn Ser Asp Leu Asn Xaa Pro Xaa
                    20                      25                      30
          Lys Asn Val Xaa Ile Ser Thr Pro Arg Ala Phe Leu Ala Phe Xaa Val
                35                      40                      45
  60      Ile Leu Asn Xaa Ser Leu Xaa Ser Gly Xaa Ser Val Leu Xaa Leu Gly
                50                      55                      60
          Phe Leu Gly Thr Ser Pro Thr Xaa Gly Gly Ser Cys Ser Leu Pro Leu
          65                      70                      75                  80
```

```
Asn Xaa Xaa Xaa Leu Val Pro Arg Xaa Xaa Xaa Pro Thr Asn Leu Xaa
                85                      90              95
Val Phe Trp Xaa Gly Phe Pro Leu Xaa Gly Xaa Phe Tyr Xaa Thr Xaa
            100                 105             110
Gly Xaa Xaa Ser
        115
```

```
<210> 1025
<211> 110
<212> PRT
<213> Homo sapiens
```

```
<400> 1025
Tyr Gln Thr Gln Ser Lys Xaa Ile His His Xaa Xaa Tyr Tyr Xaa Pro
1               5               10              15
Thr Leu Xaa Gln Met Gln Glu Trp Ala Xaa Ile Trp Xaa Leu Xaa Asp
        20                  25              30
Asp His Arg Lys Gln Asn Glu Asp Arg Gly Xaa Trp Xaa Xaa Xaa Lys
        35                  40              45
Xaa Val Gln Asn Ser Arg Leu Ser Cys His Lys Ala Pro His Xaa Xaa
    50              55                  60
Leu Arg Pro Thr Ser Xaa Xaa Lys Pro Lys Glu Gln Thr Asn Lys Arg
65              70              75                      80
Gly Pro Gly Xaa Phe Xaa Tyr Phe Thr His Ser Xaa Tyr Leu Leu Arg
            85              90              95
Ser Ser Asn Asn Gln Xaa Lys Trp Phe Leu Lys Lys Xaa Asn
            100             105             110
```

```
<210> 1026
<211> 93
<212> PRT
<213> Homo sapiens
```

```
<400> 1026
Asn Xaa Glu Ser Xaa Pro Asp Pro Phe Tyr Trp Ser Val Pro Leu Ala
1               5               10              15
Xaa Xaa Trp Arg Trp Val Ala Xaa Pro Xaa Gly Glu Leu Tyr Asp Met
        20                  25              30
Thr Gly Gly Ser Phe Val Xaa Leu Leu Xaa Xaa Thr Xaa Cys Leu Cys
        35                  40              45
Pro His Phe Val Ser Tyr Asp His Pro Xaa Xaa Thr Arg Xaa Arg Pro
    50              55                  60
Ile Pro Ala Phe Xaa Ile Gly Leu Glu Xaa Ser Thr Xaa Xaa Asp Glu
65              70              75                      80
Xaa Val Cys Phe Val Phe Gly Ile Lys His Val Arg Leu
            85              90
```

```
<210> 1027
<211> 205
<212> PRT
<213> Homo sapiens
```

```
<400> 1027
Xaa Leu Xaa Ser Arg Ala Cys Arg Ser Thr Leu Val Asp Pro Lys Phe
1               5               10              15
Glu Thr Ile Val Glu Gln Ala Pro Leu Ala Ile Glu Asp Leu Leu Asn
        20                  25              30
Glu Leu Asp Thr Gln Asp Glu Glu Val Ala Ser Asp Ser Asp Glu Ser
        35                  40              45
Ser Glu Gly Gly Glu Arg Gly Asp Ala Leu Ser Gln Lys Arg Ser Glu
    50              55                  60
Lys Pro Pro Ala Gly Ser Ile Cys Arg Ala Glu Pro Glu Ala Gly Glu
65              70              75                      80
```

390

```
      Glu Gln Ala Gly Asp Asp Arg Asp Ser Gly Gly Pro Val Leu Gln Phe
                  85              90              95
      Asp Tyr Glu Ala Val Ala Asn Arg Leu Phe Glu Met Ala Ser Arg Gln
                  100             105             110
  5   Ser Thr Pro Ser Gln Asn Arg Lys Arg Leu Tyr Lys Val Ile Arg Lys
                  115             120             125
      Leu Gln Asp Leu Ala Gly Gly Ile Phe Pro Glu Asp Glu Ile Pro Glu
                  130             135             140
      Lys Ala Cys Arg Arg Leu Leu Glu Gly Arg Arg Gln Lys Lys Thr Lys
  10  145             150             155             160
      Lys Gln Lys Arg Leu Leu Arg Leu Gln Gln Glu Arg Gly Lys Gly Glu
                  165             170             175
      Lys Glu Pro Pro Ser Pro Gly Met Glu Arg Lys Arg Ser Arg Arg Arg
                  180             185             190
  15  Gly Val Gly Ala Arg Pro Arg Gly Ala Gly Arg Gly Trp
                  195             200             205


            <210> 1028
            <211> 161
  20        <212> PRT
            <213> Homo sapiens


            <400> 1028
      Ala Gly Pro Ala Ser Glu Ile Ser Pro Xaa Ala Arg Gly Gln Lys Xaa
  25  1               5               10              15
      Ala Arg Gln Xaa Arg Xaa Thr Pro Ser Ala Pro Asp Gln Cys Pro Ser
                  20              25              30
      Lys Gly Gly Gln Cys Pro Gly Ala Gly Glu Glu Glu Thr Gln Gly
                  35              40              45
  30  Val Met Trp Pro Gly Gln Gly Gln Ala Gly Arg Glu Ala Arg Pro Arg
          50              55              60
      Leu Xaa Arg Gly Xaa Arg Leu Thr Gly Leu Xaa Cys Arg Leu Arg Xaa
  65              70              75              80
      Val Ala Pro Glu Leu Leu Cys Gln Ala Gly Gly Lys Gly Gly Thr Gly
  35              85              90              95
      Glu Met Gly Pro Ser Leu Gly Ala Ser Ile Pro Gly Thr Gly Pro Phe
                  100             105             110
      Pro Arg Ala Ser Ala Cys Gly Cys Asp Asp Leu Gly Pro Glu Gly Gln
                  115             120             125
  40  Thr Pro Lys Thr Glu Thr Leu Pro Ala Ala Gly Leu Ala Ala Pro Ala
          130             135             140
      Val Gly Gly Ser Glu Asn Lys Met Pro Arg Ser Pro Cys Gln Gly Ser
      145             150             155             160
      Val
  45


            <210> 1029
            <211> 301
            <212> PRT
  50        <213> Homo sapiens


            <400> 1029
      Trp Ala His Leu Ser Ser Ala Ala Leu Pro Ser Arg Leu Ala Gln Glu
      1               5               10              15
  55  Phe Trp Ser His Xaa Pro Glu Ser Thr Xaa Gln Pro Gly Gln Pro Xaa
                  20              25              30
      Pro Ala Xaa Gln Ala Arg Pro Gly Leu Pro Pro Cys Leu Ser Leu Ala
                  35              40              45
      Arg Pro His His Ser Leu Arg Phe Phe Phe Phe Ser Gly Ser Trp Thr
  60  50              55              60
      Leu Ala Ala Phe Ala Arg Ala Leu Val Arg Gly Arg Arg Cys Xaa Pro
  65              70              75              80
      Xaa Leu Ala Ser Xaa Phe Leu Ala Thr Gly Xaa Trp Ala Asp Leu Gly
```

391

```
                          85                    90                    95
        Ser Arg Ala Arg Ser Ala Val Pro Xaa Cys Ser Pro Ala Ser Ala Arg
                        100                   105                   110
        Ala Ser Gly Ser Gly Pro Tyr Thr Pro Pro Pro Ala Pro Leu Pro Leu
                        115                   120                   125
        His Ala Arg Ala Arg Gly Leu Leu Leu Thr Phe Pro Ser Leu Leu Leu
                    130                   135                   140
        Gln Pro Glu Gln Thr Leu Leu Leu Leu Arg Leu Leu Leu Pro Pro Pro
        145                   150                   155                   160
        Phe Lys Gln Ala Pro Ala Gly Leu Leu Trp Asp Leu Ile Phe Arg Glu
                        165                   170                   175
        Asn Ala Ser Cys Gln Val Leu Gln Leu Pro Asp His Phe Val Glu Thr
                    180                   185                   190
        Leu Ser Val Leu Arg Arg Gly Ala Leu Ala Ala Gly His Phe Lys Gln
                    195                   200                   205
        Ser Val Ser Asn Cys Leu Val Val Lys Leu Glu Asn Gly Ala Ala Thr
                    210                   215                   220
        Val Pro Val Val Thr Cys Leu Leu Leu Thr Ser Leu Arg Phe Ser Pro
        225                   230                   235                   240
        Ala Asp Gly Ala Cys Gly Arg Leu Leu Arg Pro Leu Leu Gly Gln Arg
                    245                   ·       250                   255
        Val Ser Thr Leu Thr Thr Leu Arg Gly Leu Ile Thr Val Arg Arg His
                    260                   265                   270
        Leu Leu Ile Leu Cys Val Gln Phe Ile Gln Glu Val Phe Asn Gly Lys
                    275                   280                   285
        Arg Gly Leu Leu His Asn Arg Leu Lys Leu Trp Ile His
            290                   295                   300
```

```
            <210> 1030
            <211> 216
            <212> PRT
            <213> Homo sapiens


            <400> 1030
        Pro Ser Gly Pro Arg Ser Ser Gln Pro Gln Ala Glu Ala Leu Gly Lys
        1                   5                   10                   15
        Gly Pro Val Pro Gly Met Leu Ala Pro Asn Asp Gly Pro Ile Ser Pro
                        20                   25                   30
        Val Pro Pro Phe Pro Pro Ala Trp His Arg Ser Ser Gly Ala Thr Xaa
                    35                   40                   45
        Leu Ser Leu Xaa Asn Ser Pro Val Ser Leu Xaa Pro Arg Xaa Lys Arg
                    50                   55       ·           60
        Gly Leu Ala Ser Leu Pro Ala Cys Pro Trp Pro Gly His Ile Thr Pro
        65                   70                   75                   80
        Cys Val Ser Ser Ser Ser Pro Ala Pro Gly His Trp Pro Pro Leu Leu
                        85                   90                   95
        Gly His Trp Ser Gly Ala Glu Gly Val Xaa Leu Xaa Trp Arg Ala Xaa
                        100                   105                   110
        Phe Trp Pro Arg Ala Xaa Gly Leu Ile Ser Glu Ala Gly Pro Ala Gln
                    115                   120                   125
        Leu Cys Leu Xaa Ala His Gln Pro Leu Pro Ala Pro Arg Gly Arg Ala
                    130                   135                   140
        Pro Thr Pro Leu Leu Leu Leu Leu Phe Leu Ser Met Pro Gly Leu Gly
        145                   150                   155                   160
        Gly Ser Phe Ser Pro Phe Pro Leu Ser Cys Cys Asn Leu Ser Arg Arg
                        165                   170                   175
        Phe Cys Phe Phe Val Phe Phe Cys Arg Leu Pro Ser Ser Arg Arg Leu
                    180                   185                   190
        Gln Ala Phe Ser Gly Ile Ser Ser Ser Gly Lys Met Pro Pro Ala Arg
                    195                   200                   205
        Ser Cys Ser Phe Arg Ile Thr Leu
            210                   215
```

                                        392

```
        <210> 1031
        <211> 190
        <212> PRT
        <213> Homo sapiens

        <400> 1031
Phe Glu Thr Ile Val Glu Gln Ala Pro Leu Ala Ile Glu Asp Leu Leu
1               5                   10                  15
Asn Glu Leu Asp Thr Gln Asp Glu Glu Val Ala Ser Asp Ser Asp Glu
            20                  25                  30
Ser Ser Glu Gly Gly Glu Arg Gly Asp Ala Leu Ser Gln Lys Arg Ser
        35                  40                  45
Glu Lys Pro Pro Ala Gly Ser Ile Cys Arg Ala Glu Pro Glu Ala Gly
    50                  55                  60
Glu Glu Gln Ala Gly Asp Asp Arg Asp Ser Gly Gly Pro Val Leu Gln
65                  70                  75                  80
Phe Asp Tyr Glu Ala Val Ala Asn Arg Leu Phe Glu Met Ala Ser Arg
                85                  90                  95
Gln Ser Thr Pro Ser Gln Asn Arg Lys Arg Leu Tyr Lys Val Ile Arg
            100                 105                 110
Lys Leu Gln Asp Leu Ala Gly Gly Ile Phe Pro Glu Asp Glu Ile Pro
        115                 120                 125
Glu Lys Ala Cys Arg Arg Leu Leu Glu Gly Arg Arg Gln Lys Lys Thr
        130                 135                 140
Lys Lys Gln Lys Arg Leu Leu Arg Leu Gln Gln Glu Arg Gly Lys Gly
145                 150                 155                 160
Glu Lys Glu Pro Pro Ser Pro Gly Met Glu Arg Lys Arg Ser Arg Arg
                165                 170                 175
Arg Gly Val Gly Ala Arg Pro Arg Gly Ala Gly Arg Gly Trp
            180                 185                 190


        <210> 1032
        <211> 124
        <212> PRT
        <213> Homo sapiens

        <400> 1032
Ala Phe Trp Leu Gly His Trp Ser Gly Ala Glu Gly Val Xaa Leu Xaa
1               5                   10                  15
Trp Arg Ala Xaa Phe Trp Pro Arg Ala Xaa Gly Leu Ile Ser Glu Ala
            20                  25                  30
Gly Pro Ala Gln Leu Cys Leu Xaa Ala His Gln Pro Leu Pro Ala Pro
        35                  40                  45
Arg Gly Arg Ala Pro Thr Pro Leu Leu Leu Leu Leu Phe Leu Ser Met
    50                  55                  60
Pro Gly Leu Gly Gly Ser Phe Ser Pro Phe Pro Leu Ser Cys Cys Asn
65                  70                  75                  80
Leu Ser Arg Arg Phe Cys Phe Phe Val Phe Phe Cys Arg Leu Pro Ser
                85                  90                  95
Ser Arg Arg Leu Gln Ala Phe Ser Gly Ile Ser Ser Ser Gly Lys Met
            100                 105                 110
Pro Pro Ala Arg Ser Cys Ser Phe Arg Ile Thr Leu
        115                 120


        <210> 1033
        <211> 231
        <212> PRT
        <213> Homo sapiens

        <400> 1033
Leu Leu Ala Arg Ala Leu Val Arg Gly Arg Arg Cys Xaa Pro Xaa Leu
1               5                   10                  15
Ala Ser Xaa Phe Leu Ala Thr Gly Xaa Trp Ala Asp Leu Gly Ser Arg
```

```
                    20                      25                      30
        Ala Arg Ser Ala Val Pro Xaa Cys Ser Pro Ala Ser Ala Arg Ala Ser
                        35                      40                      45
        Gly Ser Gly Pro Tyr Thr Pro Pro Pro Ala Pro Leu Pro Leu His Ala
  5             50                      55                      60
        Arg Ala Arg Gly Leu Leu Leu Thr Phe Pro Ser Leu Leu Leu Gln Pro
        65                      70                      75                      80
        Glu Gln Thr Leu Leu Leu Leu Arg Leu Leu Leu Pro Pro Pro Phe Lys
                        85                      90                      95
 10     Gln Ala Pro Ala Gly Leu Leu Trp Asp Leu Ile Phe Arg Glu Asn Ala
                        100                     105                     110
        Ser Cys Gln Val Leu Gln Leu Pro Asp His Phe Val Glu Thr Leu Ser
                        115                     120                     125
        Val Leu Arg Arg Gly Ala Leu Ala Ala Gly His Phe Lys Gln Ser Val
 15             130                     135                     140
        Ser Asn Cys Leu Val Val Lys Leu Glu Asn Gly Ala Ala Thr Val Pro
        145                     150                     155                     160
        Val Val Thr Cys Leu Leu Leu Thr Ser Leu Arg Phe Ser Pro Ala Asp
                        165                     170                     175
 20     Gly Ala Cys Gly Arg Leu Leu Arg Pro Leu Leu Gly Gln Arg Val Ser
                        180                     185                     190
        Thr Leu Thr Thr Leu Arg Gly Leu Ile Thr Val Arg Arg His Leu Leu
                        195                     200                     205
        Ile Leu Cys Val Gln Phe Ile Gln Glu Val Phe Asn Gly Lys Arg Gly
 25             210                     215                     220      ·
        Leu Leu His Asn Arg Leu Lys
        225                     230


               <210> 1034
 30            <211> 149
               <212> PRT
               <213> Homo sapiens


               <400> 1034
 35     Trp Ala His Leu Ser Ser Ala Ala Leu Pro Ser Arg Leu Ala Gln Glu
        1               5                       10                      15
        Phe Trp Ser His Xaa Pro Glu Ser Thr Xaa Gln Pro Gly Gln Pro Xaa
                        20                      25                      30
        Pro Ala Xaa Gln Ala Arg Pro Gly Leu Pro Pro Cys Leu Ser Leu Ala
 40             35                      40                      45
        Arg Pro His His Ser Leu Arg Phe Phe Phe Phe Ser Gly Ser Trp Thr
                50                      55                      60
        Leu Ala Ala Phe Ala Arg Ala Leu Val Arg Gly Arg Gly Val Leu Leu
        65                      70                      75                      80
 45     Leu Leu Ala Ser Pro Ser Leu Ala Thr Ala Pro Gly Leu Ile Ser Glu
                        85                      90                      95
        Gln Gly Pro Leu Xaa Cys Ala Trp Leu Phe Thr Lys Pro Xaa Ala Arg
                        100                     105                     110
        Ala Ser Gly Val Gly Pro Leu Thr Pro Leu Pro Pro Gly Tyr Xaa Phe
 50             115                     120                     125
        Pro Leu His Ala Pro Gly Leu Arg Gly Gly Xaa Leu Phe Xaa Pro Phe
                130                     135                     140
        Xaa Phe Phe Ser Leu
        145

 55
               <210> 1035
               <211> 126
               <212> PRT
               <213> Homo sapiens
 60
               <400> 1035
        Val Tyr Xaa Thr Ala Arg Ser Ala Xaa Ser Arg Xaa Ala Ser Glu Ala
        1               5                       10                      15
```

```
        Trp Pro Pro Ser Leu Pro Val Leu Gly Pro Ala Thr Ser Leu Pro Ala
                    20              25              30
        Phe Leu Leu Leu Leu Arg Leu Leu Asp Ile Gly Arg Leu Cys Ser Gly
                    35              40              45
        Thr Gly Gln Gly Pro Arg Cys Pro Pro Ser Ser Gly Glu Pro Leu Phe
                    50              55              60
        Gly His Gly Pro Trp Ala Asp Leu Gly Ala Gly Pro Ala Xaa Leu Cys
        65              70              75              80
        Leu Ala Val His Gln Thr Xaa Cys Pro Arg Leu Gly Gly Arg Ala Pro
                    85              90              95
        Asn Thr Pro Ser Ser Trp Val Pro Xaa Ser Ser Ser Cys Pro Gly Ala
                    100             105             110
        Ser Gly Gly Pro Xaa Phe Xaa Pro Phe Xaa Leu Phe Phe Pro
                    115             120             125
```

```
        <210> 1036
        <211> 179
        <212> PRT
        <213> Homo sapiens
```

```
        <400> 1036
        Gly Pro Asp Pro Arg Gly Ala Gly Xaa Arg Phe Gly Glu Gln Pro Gly
        1               5               10              15
        Thr Xaa Glu Arg Ala Leu Leu Arg Asp Gln Pro Arg Gly Arg Gly Gln
                    20              25              30
        Arg Gly Ala Arg Gln Lys Lys Glu Asp Thr Ser Ala Pro Asp Gln Cys
                    35              40              45
        Pro Ser Lys Gly Gly Gln Cys Pro Gly Ala Gly Glu Glu Glu Glu Thr
                    50              55              60
        Gln Gly Val Met Trp Pro Gly Gln Gly Gln Ala Gly Arg Glu Ala Arg
        65              70              75              80
        Pro Arg Leu Xaa Arg Gly Xaa Arg Leu Thr Gly Leu Xaa Cys Arg Leu
                    85              90              95
        Arg Xaa Val Ala Pro Glu Leu Leu Cys Gln Ala Gly Gly Lys Gly Gly
                    100             105             110
        Thr Gly Glu Met Gly Pro Ser Leu Gly Ala Ser Ile Pro Gly Thr Gly
                    115             120             125
        Pro Phe Pro Arg Ala Ser Ala Cys Gly Cys Asp Asp Leu Gly Pro Glu
                    130             135             140
        Gly Gln Thr Pro Lys Thr Glu Thr Leu Pro Ala Ala Gly Leu Ala Ala
        145             150             155             160
        Pro Ala Val Gly Gly Ser Glu Asn Lys Met Pro Arg Ser Pro Cys Gln
                    165             170             175
        Gly Ser Val
```

```
        <210> 1037
        <211> 156
        <212> PRT
        <213> Homo sapiens
```

```
        <400> 1037
        Ser Glu Glu Thr Leu Pro Lys Ala Asn Pro Asp Ser Leu Glu Pro Ala
        1               5               10              15
        Gly Pro Ser Ser Pro Ala Ser Val Thr Val Thr Val Gly Asp Glu Gly
                    20              25              30
        Ala Asp Thr Pro Val Gly Ala Thr Pro Leu Ile Gly Asp Glu Ser Glu
                    35              40              45
        Asn Leu Glu Gly Asp Gly Asp Leu Arg Gly Gly Arg Ile Leu Leu Gly
                    50              55              60
        His Ala Thr Lys Ser Phe Pro Ser Ser Pro Ser Lys Gly Gly Ser Cys
        65              70              75              .80
        Pro Ser Arg Ala Lys Met Ser Met Thr Gly Ala Gly Lys Ser Pro Pro
```

395

```
                        85                      90                      95
        Ser Val Gln Ser Leu Ala Met Arg Leu Leu Ser Met Pro Gly Ala Gln
                    100                     105                     110
        Gly Ala Ala Ala Ala Gly Ser Glu Pro Pro Pro Ala Thr Thr Ser Pro
5                   115                     120                     125
        Glu Gly Gln Pro Lys Val His Arg Ala Arg Lys Thr Met Ser Lys Pro
                130                     135                     140
        Gly Asn Gly Gln Val Ser Gly Met Gly Glu Met Gly
        145                 150                     155
10
            <210> 1038
            <211> 169
            <212> PRT
            <213> Homo sapiens
15
            <400> 1038
        Asn Cys Lys Arg Ala His Gln Arg Phe Met Val Asp Tyr Pro Ile Ser
        1               5                   10                      15
        Pro Ile Pro Leu Thr Cys Pro Phe Pro Gly Leu Asp Met Val Leu Arg
20                  20                      25                      30
        Ala Arg Trp Thr Leu Gly Cys Pro Ser Gly Leu Val Val Ala Gly Gly
                    35                      40                      45
        Gly Ser Asp Pro Ala Ala Ala Ala Pro Trp Ala Pro Gly Ile Leu Ser
                50                      55                      60
25      Ser Leu Ile Ala Lys Leu Trp Thr Asp Gly Gly Asp Phe Pro Ala Pro
        65                  70                      75                      80
        Val Ile Asp Ile Leu Ala Arg Leu Gly Gln Glu Pro Pro Leu Leu Gly
                        85                      90                      95
        Glu Glu Gly Asn Asp Phe Val Ala Trp Pro Ser Arg Ile Arg Pro Pro
30                  100                     105                     110
        Arg Arg Ser Pro Ser Pro Ser Arg Phe Ser Asp Ser Ser Pro Met Ser
                    115                     120                     125
        Gly Val Ala Pro Thr Gly Val Ser Ala Pro Ser Ser Pro Thr Val Thr
                130                     135                     140
35      Val Thr Glu Ala Gly Asp Glu Gly Pro Ala Gly Ser Arg Glu Ser Gly
        145                 150                     155                     160
        Leu Ala Leu Gly Arg Val Ser Ser Leu
                    165

40          <210> 1039
            <211> 67
            <212> PRT
            <213> Homo sapiens

45          <400> 1039
        Gly Asn Gly Met Glu Lys Met Glu Tyr Pro Pro Xaa Asn Xaa Leu Xaa
        1               5                   10                      15
        Xaa Phe Phe Thr Val Xaa Leu Lys Gly Phe Tyr Ser Ile Tyr Ser Xaa
                    20                      25                      30
50      Pro Ile Phe Lys Xaa Arg Xaa Cys Cys Val Ser Lys Ile Xaa Leu Xaa
                    35                      40                      45
        Leu Xaa Leu Glu Pro Thr Thr Gly Xaa Xaa Phe Leu Gln Val Tyr Ile
                50                      55                      60
        Xaa Gly Trp
55      65

            <210> 1040
            <211> 70
            <212> PRT
60          <213> Homo sapiens

            <400> 1040
        Gly Ser Phe Gln Ser Arg Ala Asn Ser Tyr Ala Val Cys Pro Glu Ser
```

396

```
      1                 5                10                15
     Ala Cys Phe Phe Ser Ile Ser Ser Arg His Pro Ile Phe Phe Ser Phe
                     20                25                30
     Lys Asn Leu Leu Val Gly Trp Leu Trp Trp Leu Ala Pro Val Ile Pro
                35                40                45
     Ala Leu Cys Glu Val Lys Ala Gly Arg Leu Leu Lys Pro Ser Ser Leu
                50                55                60
     Arg Pro Ala Trp Ala Thr
     65                70
```

```
            <210> 1041
            <211> 50
            <212> PRT
            <213> Homo sapiens
```

```
            <400> 1041
     Arg Ile Glu Glu Asp Asn Leu Thr Tyr Gln His Leu Leu Pro Glu Ser
     1                 5                10                15
     Pro Glu Pro Ser Ala Ser His Ala Leu Ser Asp Tyr Glu Thr Ser Glu
                     20                25                30
     Lys Ser Phe Phe Ser Arg Asp Gln Lys Gln Asp Asn Glu Thr Glu Lys
                35                40                45
     Thr Ser
          50
```

```
            <210> 1042
            <211> 121
            <212> PRT
            <213> Homo sapiens
```

```
            <400> 1042
     Val Met Val Asn Ser Phe Ser Gln Asp Leu Leu Met Glu His Ile Gln
     1                 5                10                15
     Glu Ile Arg Thr Leu Arg Lys Arg Leu Glu Glu Ser Ile Lys Thr Asn
                     20                25                30
     Glu Lys Leu Arg Lys Gln Leu Glu Arg Gln Gly Ser Glu Phe Val Gln
                35                40                45
     Gly Ser Thr Ser Ile Phe Ala Ser Gly Ser Glu Leu His Ser Ser Leu
                50                55                60
     Thr Ser Glu Ile His Phe Leu Arg Lys Gln Asn Gln Ala Leu Asn Ala
     65                70                75                80
     Met Leu Ile Lys Gly Ser Arg Asp Lys Gln Lys Glu Asn Asp Lys Leu
                     85                90                95
     Arg Glu Ser Leu Ser Arg Lys Thr Val Ser Leu Glu His Leu Gln Arg
                100                105                110
     Glu Tyr Ala Ser Arg Glu Gly Arg Lys
                115                120
```

```
            <210> 1043
            <211> 148
            <212> PRT
            <213> Homo sapiens
```

```
            <400> 1043
     Cys Pro Ser Cys Xaa Leu Asn Leu Val Phe Gln Lys Gly Xaa Gly Phe
     1                 5                10                15
     Gln Arg Pro Leu Ser Xaa Xaa Gln Ala Gln Xaa Pro Gly Phe Pro Xaa
                     20                25                30
     Gln Lys Ala Xaa Pro Gly Xaa Xaa Lys Asp Pro Ala Pro Phe Lys Pro
                35                40                45
     Xaa Ser Xaa Arg Xaa Phe Gln Val Ser Xaa Xaa Phe Xaa Pro Ser Phe
                50                55                60
     Ser Tyr Ala Phe Ser Ser Thr Xaa Lys Asp Cys Lys Ser Leu Ser Phe
```

397

```
      65                    70                    75                    80
      Cys Xaa Ala Ala Ala Ala Ser Thr Ser Ala Pro Pro Ala Xaa Cys Gln
                        85                    90                    95
      Xaa Leu Ala Ala Ala Ala Asp Xaa Xaa Asp Gln Leu Leu Val Gly Leu
5                       100                   105                   110
      Ser Phe Ser Leu Pro Ser Phe Cys Ser Leu Ser Phe Ser Ser Phe Thr
                    115                   120                   125
      Ala Gly Ile Leu Pro Leu Lys Val Leu Gln Ala His Gly Leu Pro Gly
                130                   135                   140
10    Glu Gly Leu Ser
      145
```

```
            <210> 1044
            <211> 160
15          <212> PRT
            <213> Homo sapiens


            <400> 1044
      Pro Lys Leu Ser Xaa Lys Pro Cys Phe Pro Lys Gly Xaa Arg Val Ser
20    1               5                   10                    15
      Lys Ala Pro Phe Xaa Xaa Pro Ser Pro Xaa Ala Trp Phe Ser Xaa Pro
                    20                    25                    30
      Glu Gly Xaa Ala Arg Ser Xaa Lys Gly Ser Cys Pro Phe Gln Ala Phe
                35                    40                    45
25    Xaa Xaa Thr Pro Xaa Ser Ser Phe Leu Xaa Phe Ser Xaa Gln Leu Phe
                50                    55                    60
      Ile Arg Leu Gln Leu His Ser Xaa Arg Leu Gln Lys Leu Val Ile Leu
      65                    70                    75                    80
      Xaa Ser Ser Cys Cys Leu Asn Phe Ser Ser Ser Cys Thr Xaa Ser Xaa
30                      85                    90                    95
      Pro Gly Arg Cys Ser Gly Xaa Xaa Gly Ser Ala Ala Gly Trp Ser Leu
                    100                   105                   110
      Leu Leu Ala Ala Phe Phe Leu Gln Pro Phe Ile Phe Phe Leu His Gly
                115                   120                   125
35    Trp His Thr Pro Ala Glu Gly Ala Pro Gly Ser Arg Ser Ser Trp Arg
                130                   135                   140
      Gly Thr Leu Val Ile Cys His Ser Pro Ser Val Tyr Leu Trp Ile Leu
      145                   150                   155                   160
```

```
40          <210> 1045
            <211> 143
            <212> PRT
            <213> Homo sapiens


45          <400> 1045
      Asn Asp Ile Gln Thr Gln Glu Ala Pro Ser Ser Thr Ser Gln Glu Leu
      1               5                   10                    15
      Gly Thr Lys Gly Pro His Pro Ala Pro Leu Ser Lys Phe Val Ser Ser
                    20                    25                    30
50    Val Ser Thr Ala Lys Leu Thr Leu Glu Glu Ala Tyr Arg Arg Leu Lys
                35                    40                    45
      Leu Xaa Trp Arg Val Ser Leu Pro Glu Asp Gly Gln Cys Pro Leu His
                50                    55                    60
      Cys Glu Gln Ile Gly Glu Met Lys Ala Glu Val Thr Lys Leu His Lys
55    65                    70                    75                    80
      Lys Leu Phe Glu Gln Glu Lys Lys Leu Gln Asn Thr Met Lys Leu Leu
                    85                    90                    95
      Gln Leu Ser Lys Arg Gln Glu Lys Val Ile Phe Asp Gln Leu Val Val
                    100                   105                   110
60    Thr His Lys Ile Leu Arg Lys Ala Arg Gly Asn Leu Glu Leu Arg Pro
                115                   120                   125
      Gly Gly Ala His Pro Gly Thr Cys Ser Pro Ser Arg Pro Gly Ser
                130                   135                   140
```

```
<210> 1046
<211> 103
<212> PRT
<213> Homo sapiens


<400> 1046
Met Ser Phe Gln Gln Gly Ala Ser Ala Leu Ala Asp Leu Phe Glu Gln
1               5                   10                  15
Gly Leu Ile Val Leu Asn Xaa Ala Xaa Asp Met Ala Ala Phe Leu Leu
            20                  25                  30
Ala His Arg Trp Trp Xaa Xaa Pro Gly Gly Thr His Thr Gly Val Leu
        35                  40                  45
Ile Gly Arg Thr Ala Thr Val Xaa Glu Xaa Gly Val Arg Val Ile Pro
    50                  55                  60
Lys Lys Trp Arg Ser Ser Glu Thr Xaa Phe Gly Val Xaa Gly Trp Xaa
65                  70                  75                  80
Glu Xaa Asn Xaa Ile Lys Xaa Asn Xaa Leu Ser Met Gly Ile Phe Gly
            85                  90                  95
Thr His Pro Val Cys Gln Gly
            100
```

```
<210> 1047
<211> 178
<212> PRT
<213> Homo sapiens


<400> 1047
Glu Asn Leu Lys Gln Gln Leu Glu Glu Gln Glu Tyr Lys Leu Gln Lys
1               5                   10                  15
Glu Gln Asn Leu Asn Met Gln Leu Phe Ser Glu Ile His Asn Leu Gln
            20                  25                  30
Asn Lys Phe Arg Asp Leu Ser Pro Pro Arg Tyr Asp Ser Leu Val Gln
        35                  40                  45
Ser Gln Ala Arg Glu Leu Ser Leu Gln Arg Gln Gln Ile Lys Asp Gly
    50                  55                  60
His Gly Ile Cys Val Ile Ser Arg Gln His Met Asn Thr Met Ile Lys
65                  70                  75                  80
Ala Phe Glu Glu Leu Leu Gln Ala Ser Asp Val Asp Tyr Cys Val Ala
            85                  90                  95
Glu Gly Phe Gln Glu Gln Leu Asn Gln Cys Ala Glu Leu Leu Glu Lys
            100                 105                 110
Leu Glu Lys Leu Phe Leu Asn Gly Lys Ser Val Gly Val Glu Met Asn
        115                 120                 125
Thr Gln Asn Glu Leu Met Glu Arg Ile Glu Glu Asp Asn Leu Thr Tyr
    130                 135                 140
Gln His Leu Leu Pro Glu Ser Pro Glu Pro Ser Ala Ser His Ala Leu
145                 150                 155                 160
Ser Asp Tyr Glu Thr Ser Glu Lys Ser Phe Phe Ser Arg Asp Gln Lys
            165                 170                 175
Pro Arg
```

```
<210> 1048
<211> 141
<212> PRT
<213> Homo sapiens


<400> 1048
His Ser Asn Pro Arg Gly Ser Gln Leu His Lys Ser Arg Ala Gly Asn
1               5                   10                  15
Lys Gly Ser Thr Pro Ser Thr Ile Glu Gln Val Cys Glu Gln Cys Glu
            20                  25                  30
```

```
His Gly Gln Ala Asp Pro Gly Arg Gly Leu Gln Arg Leu Lys Leu Leu
        35                  40                  45
Trp Arg Val Ser Leu Pro Glu Asp Gly Gln Cys Pro Leu His Cys Glu
    50                  55                  60
Gln Ile Gly Glu Met Lys Ala Glu Val Thr Lys Leu His Lys Lys Leu
65                  70                  75                  80
Phe Glu Gln Glu Lys Lys Leu Gln Asn Thr Met Lys Leu Leu Gln Leu
                85                  90                  95
Ser Lys Arg Gln Glu Lys Val Ile Phe Asp Gln Leu Val Val Thr His
            100                 105                 110
Lys Ile Leu Arg Lys Ala Arg Gly Asn Leu Glu Leu Arg Pro Gly Gly
        115                 120                 125
Ala His Pro Gly Thr Cys Ser Pro Ser Arg Pro Gly Ser
    130                 135                 140
```

        <210> 1049
        <211> 135
        <212> PRT
        <213> Homo sapiens

        <400> 1049

```
Ser Ser Ile Xaa Pro Lys Thr Trp Arg Pro Phe Leu Leu Ala His Lys
1               5                   10                  15
Val Val Ala Asn Asp Gln Xaa Gly His Thr Xaa Ser Ala Ser Cys Arg
            20                  25                  30
Thr Ala Thr Val Xaa Arg Xaa Gly Asn Pro Cys His Phe Gln Lys Ser
        35                  40                  45
Gly Gly Val Ser Glu Thr Glu Phe Xaa Xaa His Trp Pro Gly Arg Asn
    50                  55                  60
Gln Xaa Asp Gln Met Xaa Tyr Pro Phe His Gly Xaa Ile Cys Xaa Ile
65                  70                  75                  80
Xaa Phe Val Xaa Leu Lys Gly Xaa Leu Arg Asp Gly His Arg Leu Gly
                85                  90                  95
Lys Pro Xaa Xaa Xaa Leu Xaa Leu Gly Leu Phe Xaa Pro Leu Ala Xaa
            100                 105                 110
Val Leu Glu Pro Val Leu Lys Arg Xaa Xaa Phe Xaa Pro Xaa Leu Xaa
        115                 120                 125
Ala Xaa Gln Thr Xaa Phe His
    130                 135
```

        <210> 1050
        <211> 218
        <212> PRT
        <213> Homo sapiens

        <400> 1050

```
Gly Val Pro Gly Trp Gln Ala Ala Leu Leu Ser Leu Pro Gly Ile Thr
1               5                   10                  15
Asn Arg Glu Ala Lys Lys Ser Arg Leu Pro Ile Leu Ile Lys Pro Ser
            20                  25                  30
Arg Ser Leu Gly Asn Met Tyr Arg Leu Pro Ala Thr Gln Glu Val Val
        35                  40                  45
Thr Gln Leu Gln Ser Gln Ile Leu Glu Leu Gln Gly Glu Leu Lys Glu
    50                  55                  60
Phe Lys Thr Cys Asn Lys Gln Leu His Gln Lys Leu Ile Leu Ala Glu
65                  70                  75                  80
Ala Val Met Glu Gly Arg Pro Thr Pro Asp Lys Thr Leu Leu Asn Ala
                85                  90                  95
Gln Pro Pro Val Gly Ala Ala Tyr Gln Asp Ser Pro Gly Glu Gln Lys
            100                 105                 110
Gly Ile Lys Thr Thr Ser Ser Val Trp Arg Asp Lys Glu Met Asp Ser
        115                 120                 125
Asp Gln Gln Arg Ser Tyr Glu Ile Asp Ser Glu Ile Cys Pro Pro Asp
```
                        400
```

```
              130                      135                      140
       Asp Leu Ala Ser Leu Pro Ser Cys Lys Glu Asn Pro Glu Asp Val Leu
       145                      150                      155                160
       Ser Pro Thr Ser Val Ala Thr Tyr Leu Ser Ser Lys Ser Gln Pro Ser
5                           165                      170                175
       Ala Lys Val Ser Val Met Gly Thr Asp Gln Ser Glu Ser Ile Asn Thr
                   180                      185                      190
       Ser Asn Glu Thr Glu Tyr Leu Lys Gln Lys Xaa His Asp Leu Gly Asn
                   195                      200                      205
10     Trp Asn Leu Xaa Arg Leu Pro Xaa Ile Ser
           210                      215
```

```
           <210> 1051
           <211> 96
15         <212> PRT
           <213> Homo sapiens


           <400> 1051
       Ser Xaa Xaa Trp Arg Val Ser Leu Pro Xaa Asp Gly Gln Cys Pro Xaa
20     1               5                   10                  15
       Xaa Cys Glu Gln Ile Gly Glu Met Lys Ala Glu Val Xaa Lys Leu His
                   20                      25                      30
       Lys Lys Leu Phe Glu Gln Glu Lys Lys Leu Gln Asn Xaa Met Lys Leu
               35                      40                      45
25     Leu Gln Leu Ser Lys Arg Gln Glu Lys Val Ile Phe Asp Gln Leu Val
               50                      55                      60
       Val Thr His Lys Ile Leu Arg Lys Ala Arg Gly Asn Leu Glu Leu Arg
       65                      70                      75                  80
       Pro Gly Gly Ala His Pro Gly Thr Cys Ser Pro Ser Arg Pro Gly Ser
30                          85                      90                  95
```

```
           <210> 1052
           <211> 106
           <212> PRT
35         <213> Homo sapiens


           <400> 1052
       Ser Lys Met Thr Phe Ser Trp Arg Leu Leu Ser Cys Lys Ser Phe Met
       1               5                   10                  15
40     Xaa Phe Cys Asn Phe Phe Ser Cys Ser Asn Asn Phe Leu Cys Ser Leu
                   20                      25                      30
       Xaa Thr Ser Ala Phe Ile Ser Pro Ile Cys Ser Gln Xaa Xaa Gly His
               35                      40                      45
       Trp Pro Ser Xaa Gly Ser Glu Thr Leu Xaa Xaa Lys Leu Xaa Pro Ala
45     50                      55                      60
       Val Xaa Pro Xaa Xaa Arg Val Ser Trp Ala Gly Ser His Xaa Leu Gln
       65                      70                      75                  80
       Thr Cys Leu Xaa Xaa Ala Xaa Xaa Xaa Ala Leu Trp Phe Gln Xaa Leu
                   85                      90                  95
50     Thr Leu Xaa Asn Trp Xaa Pro Phe Trp Gly
                   100                      105
```

```
           <210> 1053
           <211> 219
55         <212> PRT
           <213> Homo sapiens


           <400> 1053
       Cys Leu Asp Phe Ser Lys Ala Asp Ser Gly Val His Leu Cys Val Ile
60     1               5                   10                  15
       Asp Asp Ser Asn Glu His Met Leu Thr Val Trp Asp Trp Gln Arg Lys
                   20                      25                      30
       Ala Lys Gly Ala Glu Ile Lys Thr Thr Asn Glu Val Val Leu Ala Val
```

```
               35                    40                    45
      Glu Phe His Pro Thr Asp Ala Asn Thr Ile Ile Thr Cys Gly Lys Ser
          50                    55                    60
      His Ile Phe Phe Trp Thr Trp Ser Gly Asn Ser Leu Thr Arg Lys Gln
 5    65                    70                    75                    80
      Gly Ile Phe Gly Lys Tyr Glu Lys Pro Lys Phe Val Gln Cys Leu Ala
                    85                    90                    95
      Phe Leu Gly Asn Gly Asp Val Leu Thr Gly Asp Ser Gly Gly Val Met
                    100                   105                   110
10    Leu Ile Trp Ser Lys Thr Thr Val Glu Pro Thr Pro Gly Lys Gly Pro
                    115                   120                   125
      Lys Gly Val Tyr Gln Ile Ser Lys Gln Ile Lys Ala His Asp Gly Ser
                    130                   135                   140
      Val Phe Thr Leu Cys Gln Met Arg Asn Gly Met Leu Leu Thr Gly Gly
15    145                   150                   155                   160
      Gly Lys Asp Arg Lys Ile Ile Leu Trp Asp His Asp Leu Asn Pro Glu
                    165                   170                   175
      Arg Glu Ile Glu Gly Pro Asp Gln Tyr Gly Thr Ile Arg Ala Val Ala
                    180                   185                   190
20    Glu Gly Lys Gly Arg Ser Ile Phe Ser Arg Pro His His Arg Asn Phe
                    195                   200                   205
      Ile Leu Arg Xaa Asn His Phe Asn Asp Gly Leu
          210                   215
```

```
          <210> 1054
25        <211> 126
          <212> PRT
          <213> Homo sapiens


30        <400> 1054
      Pro Arg Xaa Phe Ser Thr Xaa Xaa Phe Pro Pro Leu Tyr Glu Arg Phe
          1                   5                     10                    15
      Gly Val Cys Leu Lys Gly Gln Gly Asn Pro Leu Trp Val Xaa Xaa Asn
                    20                    25                    30
35    Lys Lys Ile Cys Pro Pro Leu Lys Ile Xaa Arg Xaa Ile Ser Tyr Gly
                    35                    40                    45
      Glu Lys Xaa Ser Glu Ile Leu Pro Phe Gly Xaa His Leu Leu Lys Thr
          50                    55                    60
      Xaa Lys Ile Val Xaa Phe Lys Xaa Xaa Xaa Asp Ser Lys His Pro Ile
40    65                    70                    75                    80
      Phe Leu Gln Tyr Val Cys Ser Val His Thr Tyr Arg Ser Ala Pro Val
                    85                    90                    95
      Ser Ile Arg His Ile Tyr Leu Ser Val Ser Asn Asp Tyr Tyr Ile Ile
                    100                   105                   110
45    Arg Ser Ala Cys Ala Ile Leu Pro Ala Arg Asn Ile Leu Thr
                    115                   120                   125
```

```
          <210> 1055
          <211> 72
50        <212> PRT
          <213> Homo sapiens


          <400> 1055
      Lys Asn Met Pro Pro Val Lys Asn Xaa Gln Gly Xaa Leu Leu Trp Gly
55    1                   5                     10                    15
      Lys Xaa Ile Gly Asn Pro Ser Leu Trp Xaa Xaa Pro Val Lys Asn Xaa
                    20                    25                    30
      Gln Asn Ser Xaa Phe Gln Xaa Xaa Xaa Arg Phe Gln Ala Pro His Leu
                    35                    40                    45
60    Ser Ser Val Cys Met Phe Cys Thr Tyr Leu Ser Glu Arg Ala Ser Lys
                    50                    55                    60
      Tyr Gln Ala Tyr Ile Ser Val Cys
      65                    70
```

4D2

```
        <210> 1056
        <211> 206
        <212> PRT
        <213> Homo sapiens


        <400> 1056
Met Leu Leu Thr Gly Gly Gly Lys Asp Arg Lys Ile Ile Leu Trp Asp
1               5                   10                  15
His Asp Leu Asn Pro Glu Arg Glu Ile Glu Val Pro Asp Gln Tyr Gly
            20                  25                  30
Thr Ile Arg Ala Val Ala Glu Gly Lys Ala Asp Gln Phe Leu Val Gly
            35                  40                  45
Thr Ser Arg Asn Phe Ile Leu Arg Gly Thr Phe Asn Asp Gly Phe Gln
    50                  55                  60
Ile Glu Val Gln Gly His Thr Asp Glu Leu Trp Gly Leu Ala Thr His
65                  70                  75                  80
Pro Phe Lys Asp Leu Leu Leu Thr Cys Ala Gln Asp Arg Gln Val Cys
                85                  90                  95
Leu Trp Asn Ser Met Glu His Xaa Leu Glu Trp Thr Arg Leu Val Asp
                100                 105                 110
Glu Pro Gly His Cys Ala Asp Phe His Pro Ser Gly Thr Val Val Ala
                115                 120                 125
Ile Gly Thr His Ser Gly Arg Trp Phe Val Leu Asp Ala Glu Thr Arg
    130                 135                 140
Asp Leu Val Ser Ile His Thr Asp Gly Asn Glu Gln Leu Ser Val Met
145                 150                 155                 160
Arg Tyr Ser Ile Asp Gly Thr Phe Leu Ala Val Gly Ser His Asp Asn
                165                 170                 175
Phe Ile Tyr Leu Tyr Val Val Ser Glu Asn Gly Arg Lys Xaa Ser Arg
                180                 185                 190
Tyr Gly Arg Xaa Thr Gly His Ser Ser Tyr Ile Thr His Xaa
        195                 200                 205


        <210> 1057
        <211> 70
        <212> PRT
        <213> Homo sapiens


        <400> 1057
Glu Asp Met Xaa His Val Glu Xaa Leu Ser Glu Ile Ser Met Xaa Ile
1               5                   10                  15
Gly Xaa Xaa Xaa Leu Pro Phe Gly Xaa Gln Leu Leu Lys Thr Leu Lys
            20                  25                  30
Ile Val Leu Phe Lys Arg Arg Glu Ile Pro Ser Asn Pro Ser Phe Phe
            35                  40                  45
Ser Met Tyr Val Leu Thr Tyr Leu Ser Glu Arg Ala Ser Lys Tyr Gln
    50                  55                  60
Ala Tyr Ile Ser Val Cys
65                  70


        <210> 1058
        <211> 99
        <212> PRT
        <213> Homo sapiens


        <400> 1058
Tyr Leu Leu Ala Arg Ser Asp Lys Tyr Val Arg Thr Tyr Ile Leu Lys
1·              5                   10                  15
Lys Asp Gly Leu Leu Gly Ile Ser Leu Leu Lys Arg Thr Ile Leu
            20                  25                  30
Arg Val Phe Asn Ser Cys Xaa Pro Lys Gly Arg Xaa Xaa Asp Pro Ile
            35                  40                  45
```

403

```
Xaa Ile Glu Ile Ser Leu Ser Xaa Ser Thr Trp Xaa Ile Ser Ser Tyr
    50              55              60
Leu Lys Lys His Thr Val Phe Ser Leu Xaa Pro Leu Asn Thr Pro Thr
65              70              75              80
Pro Phe His Tyr Xaa Gly Xaa Lys Xaa Met Val Xaa Asn Xaa Pro Trp
                85          90              95
Glu Val Thr
```

```
        <210> 1059
        <211> 219
        <212> PRT
        <213> Homo sapiens

        <400> 1059
Phe Leu Gln Pro Leu Gln Pro His Val Arg Val Trp Asp Ser Val Thr
1               5               10              15
Leu Ser Thr Leu Gln Ile Ile Gly Leu Gly Thr Phe Glu Arg Gly Val
            20              25              30
Gly Cys Leu Asp Phe Ser Lys Ala Asp Ser Gly Val His Leu Cys Val
        35              40              45
Ile Asp Asp Ser Asn Glu His Met Leu Thr Val Trp Asp Trp Gln Arg
    50              55              60
Lys Ala Lys Gly Ala Glu Ile Lys Thr Thr Asn Glu Val Val Leu Ala
65              70              75              80
Val Glu Phe His Pro Thr Asp Ala Asn Thr Ile Ile Thr Cys Gly Lys
            85              90              95
Ser His Ile Phe Phe Trp Thr Trp Ser Gly Asn Ser Leu Thr Arg Lys
            100             105             110
Gln Gly Ile Phe Gly Lys Tyr Glu Lys Pro Lys Phe Val Gln Cys Leu
            115             120             125
Ala Phe Leu Gly Asn Gly Asp Val Leu Thr Gly Asp Ser Gly Gly Val
    130             135             140
Met Leu Ile Trp Ser Lys Thr Thr Val Glu Pro Thr Pro Gly Lys Gly
145             150             155             160
Pro Lys Gly Val Tyr Gln Ile Ser Lys Gln Ile Lys Ala His Asp Gly
            165             170             175
Ser Val Phe Thr Leu Cys Gln Met Arg Asn Gly Met Leu Leu Thr Gly
            180             185             190
Gly Xaa Lys Asp Arg Lys Ile Ile Leu Trp Asp His Asp Leu Asn Pro
    195             200             205
Glu Arg Arg Asn Arg Xaa Ser Trp Ile Ser Met
    210             215
```

```
        <210> 1060
        <211> 69
        <212> PRT
        <213> Homo sapiens

        <400> 1060
Leu Leu His His Gln Ile Ser Met Cys Tyr Thr Pro Cys Lys Lys Tyr
1               5               10              15
Thr Asp Met Asn Arg Gln Phe Leu Glu Lys Lys Glu His Phe Phe Lys
            20              25              30
Tyr Leu Gly Asn Thr Ala Leu Ser Asp Gln Gln Gly Val Tyr Leu Arg
        35              40              45
Thr Ser Val Thr Phe Gly Val Ala Met Tyr Asn Glu Ile Tyr Asn His
    50              55              60
Asp Thr Leu Arg Trp
65
```

```
        <210> 1061
        <211> 86
```

```
<212> PRT
<213> Homo sapiens

<400> 1061
Arg Gly Xaa Trp Lys Pro Leu Cys Val Ser Leu Asp Lys Lys Ile Cys
1               5                   10                  15
Thr Xaa Val Glu Asn Thr Gln Cys Arg Ser Xaa Cys Gly Xaa Xaa Ile
            20                  25                  30
Xaa Ile Ser Phe Pro Phe Gly Leu Pro Leu Leu Lys Xaa Leu Lys Ile
        35                  40                  45
Val Xaa Phe Gln Lys Lys Arg Asp Ser Lys Xaa Pro Ile Phe Leu Gln
    50                  55                  60
Tyr Val Cys Ser Cys Thr Tyr Leu Ser Glu Arg Ala Ser Lys Tyr Gln
65                  70                  75                  80
Ala Tyr Ile Ser Val Cys
                85


<210> 1062
<211> 200
<212> PRT
<213> Homo sapiens

<400> 1062
Leu Ala Arg Ser Ala Asp Arg Arg Ala Ser Thr Asp Leu Thr Arg Lys
1               5                   10                  15
Met Lys Pro Asp Glu Thr Pro Met Phe Asp Pro Ser Leu Leu Lys Glu
            20                  25                  30
Val Asp Trp Ser Gln Asn Thr Ala Thr Phe Ser Pro Ala Ile Ser Pro
            35                  40                  45
Thr His Pro Gly Glu Gly Leu Val Leu Arg Pro Leu Cys Thr Ala Asp
        50                  55                  60
Leu Asn Arg Gly Phe Phe Lys Val Leu Gly Gln Leu Thr Glu Thr Gly
65                  70                  75                  80
Val Val Ser Pro Glu Gln Phe Met Lys Ser Phe Glu His Met Lys Lys
                85                  90                  95
Ser Gly Asp Tyr Tyr Val Thr Val Val Glu Asp Val Thr Leu Gly Gln
            100                 105                 110
Ile Val Ala Thr Ala Thr Leu Ile Ile Glu His Lys Phe Ile His Ser
            115                 120                 125
Cys Ala Lys Arg Gly Arg Val Glu Asp Val Val Val Ser Asp Glu Cys
    130                 135                 140
Arg Gly Lys Gln Leu Gly Lys Leu Leu Leu Ser Thr Leu Thr Leu Leu
145                 150                 155                 160
Ser Lys Lys Leu Asn Cys Tyr Lys Ile Thr Leu Glu Cys Leu Pro Gln
            165                 170                 175
Asn Val Gly Phe Tyr Lys Lys Phe Gly Tyr Thr Val Ser Glu Glu Asn
            180                 185                 190
Tyr Met Cys Arg Arg Phe Leu Lys
    195                 200


<210> 1063
<211> 110
<212> PRT
<213> Homo sapiens

<400> 1063
Tyr Val Gly Asn Asn Thr Pro Leu Ser Val Leu Arg Cys Phe Phe Glu
1               5                   10                  15
Thr Lys Ile Phe Asn Phe Met His Val Ile Asn Ser Leu Ile Gln Xaa
            20                  25                  30
Tyr Phe Phe Xaa Met Ser His Pro Asp Xaa Asp Xaa Tyr Phe Leu Leu
        35                  40                  45
Pro Ile Leu Leu Thr Pro Lys Lys Gly Ser Gln Leu Leu Glu Lys Tyr
```

405

```
              50                     55                    60
      His Ala Gly Lys Asp Gln Val Lys Xaa Phe Ser Leu Xaa Lys Asn Ile
      65                     70                    75                    80
      Pro Xaa Xaa Ile His Trp Lys Leu Asn Pro Xaa Gly Pro Pro Xaa Gln
5                          85                    90                    95
      Glu Ser Leu Lys Ala Phe Ser Trp Gly Phe Gln Gly Phe Pro
                         100                   105                   110


             <210> 1064
10           <211> 266
             <212> PRT
             <213> Homo sapiens


             <400> 1064
15    Val Ala Ala Ser Leu Leu Ala Pro Leu Leu Pro Glu Gly Ile Lys Glu
       1               5                    10                    15
      Glu Glu Glu Arg Trp Arg Arg Lys Val Ile Cys Lys Glu Glu Pro Val
                      20                    25                    30
      Ser Glu Val Lys Glu Thr Ser Thr Thr Val Glu Glu Ala Thr Thr Ile
20              35                    40                    45
      Val Lys Pro Gln Glu Ile Met Leu Asp Asn Ile Glu Asp Pro Ser Gln
              50                    55                    60
      Glu Asp Leu Cys Ser Val Val Gln Ser Gly Glu Ser Glu Glu Glu Glu
      65                    70                    75                    80
25    Glu Gln Asp Thr Leu Glu Leu Glu Leu Val Leu Glu Arg Lys Lys Ala
                      85                    90                    95
      Glu Leu Arg Ala Leu Glu Glu Gly Asp Gly Ser Val Ser Gly Ser Ser
                     100                   105                   110
      Pro Arg Ser Asp Ile Ser Gln Pro Ala Ser Gln Asp Gly Met Arg Arg
30              115                   120                   125
      Leu Met Ser Lys Arg Gly Lys Trp Lys Met Phe Val Arg Ala Thr Ser
              130                   135                   140
      Pro Glu Ser Thr Ser Arg Ser Ser Ser Lys Thr Gly Arg Asp Thr Pro
      145                   150                   155                   160
35    Glu Asn Gly Glu Thr Ala Ile Gly Ala Glu Asn Ser Glu Lys Ile Asp
                     165                   170                   175
      Glu Asn Ser Asp Lys Glu Met Glu Val Glu Glu Ser Ser Glu Lys Ile
                     180                   185                   190
      Lys Val Gln Thr Thr Pro Lys Val Glu Glu Glu Gln Asp Leu Lys Phe
40              195                   200                   205
      Gln Ile Gly Glu Leu Ala Asn Thr Leu Pro Ser Lys Phe Arg Val Ser
              210                   215                   220
      Ser Ile Asn Arg Gln Ser Ile Phe Asn Phe His Val Leu Leu Phe Gln
      225                   230                   235                   240
45    Thr Gly Thr Arg Ile Ala Thr Gly Gly Lys Gly Leu Leu Met Thr Leu
                     245                   250                   255
      Asn Glu Asn Phe Arg Met Gln Gln Asn Asn
                     260                   265


50           <210> 1065
             <211> 114
             <212> PRT
             <213> Homo sapiens


55           <400> 1065
      Asp Leu Pro Met His Asn Arg Val Ser Ser Phe Ile Asn Glu Gly Thr
       1               5                    10                    15
      Gln Ser Pro Arg Thr Leu Ile Ser Leu Pro Lys Lys Arg Thr Thr Lys
                      20                    25                    30
60    Phe Val Lys Gly Asp Ser Ser Pro Leu Gly Pro Trp Asn Ser His Phe
                      35                    40                    45
      Ile Phe Leu Ile Ser Asn Thr Val Lys Ala Lys Glu Arg Glu Arg Ile
              50                    55                    60
```

```
Trp Glu Leu Lys Asn Lys Arg Ala Lys Ile Ser Asn Asn Glu Lys Lys
65              70              75                      80
Ile Lys Lys Ser Gln Ile Tyr Lys Glu Met Phe Ser Ser Asp Leu Leu
            85              90                      95
Ala Glu Asp Ser Asn Leu Val Leu His Ser His Leu Gln Pro Arg Ser
            100             105                     110
Phe Pro
```

```
        <210> 1066
        <211> 276
        <212> PRT
        <213> Homo sapiens
```

```
        <400> 1066
Val Ala Ala Ser Leu Leu Ala Pro Leu Leu Pro Glu Gly Ile Lys Glu
1               5               10                      15
Glu Glu Glu Arg Trp Arg Arg Lys Val Ile Cys Lys Glu Glu Pro Val
            20              25                      30
Ser Glu Val Lys Glu Thr Ser Thr Thr Val Glu Glu Ala Thr Thr Ile
            35              40                      45
Val Lys Pro Gln Glu Ile Met Leu Asp Asn Ile Glu Asp Pro Ser Gln
            50              55                      60
Glu Asp Leu Cys Ser Val Val Gln Ser Gly Glu Ser Glu Glu Glu Glu
65              70              75                      80
Glu Gln Asp Thr Leu Glu Leu Glu Leu Val Leu Glu Arg Lys Lys Ala
            85              90                      95
Glu Leu Arg Ala Leu Glu Glu Gly Asp Gly Ser Val Ser Gly Ser Ser
            100             105                     110
Pro Arg Ser Asp Ile Ser Gln Pro Ala Ser Gln Asp Gly Met Arg Arg
            115             120                     125
Leu Met Ser Lys Arg Gly Lys Trp Lys Met Phe Val Arg Ala Thr Ser
            130             135                     140
Pro Glu Ser Thr Ser Arg Ser Ser Ser Lys Thr Gly Arg Asp Thr Pro
145             150                     155                     160
Glu Asn Gly Glu Thr Ala Ile Gly Ala Glu Asn Ser Glu Lys Ile Asp
            165             170                     175
Glu Asn Ser Asp Lys Glu Met Glu Val Glu Glu Ser Ser Glu Lys Ile
            180             185                     190
Lys Val Gln Thr Thr Pro Lys Xaa Xaa Glu Glu Gln Asp Leu Lys Phe
            195             200                     205
Gln Ile Gly Glu Leu Ala Asn Thr Leu Pro Ser Lys Phe Arg Val Ser
            210             215                     220
Ser Ile Asn Arg Gln Xaa Ile Phe Asn Phe His Val Leu Leu Phe Gln
225             230                     235                     240
Thr Gly Thr Arg Ile Ala Thr Gly Xaa Lys Gly Xaa Phe Met Xaa Thr
            245             250                     255
Thr Leu Thr Lys Thr Leu Gly Cys Pro Xaa Thr Thr Xaa Pro Phe Glu
            260             265                     270
Ile Xaa Pro Ser
            275
```

```
        <210> 1067
        <211> 114
        <212> PRT
        <213> Homo sapiens
```

```
        <400> 1067
Asp Leu Pro Met His Asn Arg Val Ser Ser Phe Ile Asn Glu Gly Thr
1               5               10                      15
Gln Ser Pro Arg Thr Leu Ile Ser Leu Pro Lys Lys Arg Thr Thr Lys
            20              25                      30
Phe Val Lys Gly Asp Ser Ser Pro Leu Gly Pro Trp Asn Ser His Phe
```

```
                35                    40                    45
     Ile Phe Leu Ile Ser Asn Thr Val Lys Ala Lys Glu Arg Glu Arg Ile
                50                    55                    60
     Trp Glu Leu Lys Asn Lys Arg Ala Lys Ile Ser Asn Asn Glu Lys Lys
     65                    70                    75                    80
     Ile Lys Lys Ser Gln Ile Tyr Lys Glu Met Phe Ser Ser Asp Leu Leu
                     85                    90                    95
     Ala Glu Asp Ser Asn Leu Val Leu His Ser His Leu Gln Pro Arg Ser
                    100                   105                   110
     Phe Pro
```

```
          <210> 1068
          <211> 87
          <212> PRT
          <213> Homo sapiens


          <400> 1068
     Arg Thr Arg Leu Leu Ser Ser Ala Ser Arg Ser Asp Glu Asn Ile Ser
     1               5                     10                    15
     Leu Tyr Ile Trp Leu Phe Leu Ile Phe Phe Ser Leu Phe Glu Ile Phe
                    20                    25                    30
     Ala Leu Leu Phe Phe Ser Ser Gln Ile Leu Ser Leu Ser Leu Ala Phe
                 35                    40                    45
     Thr Val Phe Asp Ile Lys Asn Met Lys Cys Glu Phe His Gly Pro Arg
              50                    55                    60
     Gly Glu Glu Ser Pro Phe Thr Asn Phe Val Val Leu Phe Phe Gly Arg
     65                    70                    75                    80
     Glu Ile Ser Val Leu Gly Asp
                      85
```

```
          <210> 1069
          <211> 265
          <212> PRT
          <213> Homo sapiens


          <400> 1069
     Val Thr Lys Leu Ser Val Lys Asp Arg Leu Gly Phe Val Ser Lys Pro
     1               5                     10                    15
     Ser Val Ser Ala Thr Glu Lys Val Leu Ser Thr Ser Thr Gly Leu Thr
                    20                    25                    30
     Lys Thr Val Tyr Asn Pro Ala Ala Leu Lys Ala Ala Gln Lys Thr Leu
              35                    40                    45
     Leu Val Ser Thr Ser Ala Val Asp Asn Asn Glu Ala Gln Lys Lys Lys
          50                    55                    60
     Gln Glu Ala Leu Lys Leu Gln Gln Asp Val Arg Lys Arg Lys Gln Glu
     65                    70                    75                    80
     Ile Leu Glu Lys His Ile Glu Thr Gln Lys Met Leu Ile Ser Lys Leu
                    85                    90                    95
     Glu Lys Asn Lys Thr Met Lys Ser Glu Asp Lys Ala Glu Ile Met Lys
                   100                   105                   110
     Thr Leu Glu Val Leu Thr Lys Asn Ile Thr Lys Leu Lys Asp Glu Val
              115                   120                   125
     Lys Ala Ala Ser Pro Gly Arg Cys Leu Pro Lys Ser Ile Lys Thr Lys
          130                   135                   140
     Thr Gln Met Gln Lys Glu Leu Leu Asp Thr Glu Leu Asp Leu Tyr Lys
     145                   150                   155                   160
     Lys Met Gln Ala Gly Glu Glu Val Thr Glu Leu Arg Arg Lys Tyr Thr
                   165                   170                   175
     Glu Leu Gln Leu Glu Ala Ala Lys Arg Gly Ile Leu Ser Ser Gly Arg
                   180                   185                   190
     Gly Arg Gly Ile His Ser Arg Xaa Arg Gly Ala Val His Gly Arg Ser
                   195                   200                   205
```

```
      Arg Gly Arg Arg Pro Arg Pro Ser Val Pro Gly Met Leu Trp Trp Ile
          210             215             220
      Pro Ser Lys Ala Leu Glu Ile Ser Ala Leu Pro Gly Ala Ile Xaa Xaa
      225             230             235             240
 5    Ile Phe Phe Leu Xaa Ala Gln Ile Xaa Glu Ile Glu Xaa Gly Lys Ile
                  245             250             255
      Gly Asp Xaa His Phe Met Pro Asn Tyr
              260             265


10        <210> 1070
          <211> 27
          <212> PRT
          <213> Homo sapiens


15        <400> 1070
      Val Leu Met His Pro Asp Val Ile Ile Lys Trp Asn Gly Leu Phe Lys
      1               5               10              15
      Lys Lys Lys Gly Lys Lys Arg Glu Lys Gln Cys
                  20              25

20
          <210> 1071
          <211> 63
          <212> PRT
          <213> Homo sapiens

25
          <400> 1071
      Gln Leu Phe Thr Glu Val Lys Cys Lys His Gln Ser Phe Lys Ile Lys
      1               5               10              15
      Xaa Arg Xaa Glu Val Ser Ser Phe Leu Ala Ile Xaa Glu Ile His Leu
                  20              25              30
30    His Pro Phe Tyr Gln Lys Leu Phe Leu Gln Ile Cys Lys Ser Xaa Leu
                  35              40              45
      Asp Asn Leu Met Lys His Arg Xaa Arg Ser Ser Tyr Xaa Asp Gln
          50              55              60

35
          <210> 1072
          <211> 190
          <212> PRT
          <213> Homo sapiens

40
          <400> 1072
      Asn Thr Ser Leu Val Ile Asp Glu Thr Leu Leu Glu Gln Gly Gln Leu
      1               5               10              15
      Asp Thr Pro Gly Val His Asn Val Thr Ala Leu Ser Asn Leu Ile Thr
                  20              25              30
45    Trp Gln Lys Val Asp Tyr Asp Phe Ser Tyr His Gln Met Glu Phe Pro
                  35              40              45
      Cys Asn Ile Asn Val Phe Ile Thr Ser Glu Gly Arg Ser Leu Leu Pro
          50              55              60
      Ala Asp Cys Gln Ile His Leu Gln Pro Gln Leu Ile Pro Pro Asn Met
50    65              70              75              80
      Glu Glu Tyr Met Asn Ser Leu Leu Ser Ala Val Leu Pro Ser Val Leu
                  85              90              95
      Asn Lys Phe Arg Ile Tyr Leu Thr Leu Leu Arg Phe Leu Glu Tyr Ser
55                100             105             110
      Ile Ser Asp Glu Ile Thr Lys Ala Val Glu Asp Asp Phe Val Glu Met
                  115             120             125
      Arg Lys Asn Asp Pro Gln Ser Ile Thr Ala Asp Asp Leu His Gln Leu
                  130             135             140
60    Leu Val Val Ala Arg Cys Leu Ser Leu Ser Ala Gly Gln Thr Thr Leu
      145             150             155             160
      Ser Arg Glu Arg Trp Leu Arg Ala Lys Gln Leu Glu Ser Leu Arg Arg
                  165             170             175
```

```
Thr Arg Leu Gln Gln Gln Lys Cys Val Asn Gly Asn Glu Leu
            180             185             190


        <210> 1073
        <211> 71
        <212> PRT
        <213> Homo sapiens


        <400> 1073
Leu Leu Ile Trp Asp Val Leu Phe Ile Gly Lys Val Leu Ser Arg Glu
  1           5               10              15
Leu Phe Cys Lys Thr Lys Gln Cys Met Tyr Phe Ser Leu Val Asn Tyr
            20              25              30
Asn Leu His Trp His Lys Lys His Met Val Thr Asn Val Leu Cys Ser
            35              40              45
Arg Thr Ile Lys Glu Asn Val Phe Tyr Pro His Lys Ser Ser Glu Ala
        50              55              60
Phe Ile Leu Phe Leu Lys Val
65              70


        <210> 1074
        <211> 71
        <212> PRT
        <213> Homo sapiens


        <400> 1074
Leu Ala Asp Leu Thr Tyr Phe Gly Thr Thr Asp Asp Pro Xaa Lys Asn
  1           5               10              15
Ala Gln Asn Xaa Ile Xaa Ser Lys His Leu Met Thr Phe Xaa Lys Ile
            20              25              30
Lys Leu Xaa Lys Xaa Xaa Met Xaa Phe Xaa Val Pro Ile Leu Phe His
            35              40              45
Ile Xaa Ala Gln Leu Cys Xaa Pro Xaa Phe Pro Leu His Gly Ser Gln
        50              55              60
Met Pro Trp Asp Trp Glu Lys
65              70


        <210> 1075
        <211> 214
        <212> PRT
        <213> Homo sapiens


        <400> 1075
Cys Ser Glu Lys Ala Ala Pro His Lys Ala Glu Gly Leu Glu Glu Ala
  1           5               10              15
Asp Thr Gly Ala Ser Gly Cys His Ser His Pro Glu Glu Gln Pro Thr
            20              25              30
Ser Ile Ser Pro Ser Arg His Gly Ala Leu Ala Glu Leu Cys Pro Pro
            35              40              45
Gly Gly Ser His Arg Met Ala Leu Gly Thr Ala Ala Ala Leu Gly Ser
        50              55              60
Asn Val Ile Arg Asn Glu Gln Leu Pro Leu Gln Tyr Leu Ala Asp Val
65              70              75              80
Asp Thr Ser Asp Glu Glu Ser Ile Arg Ala His Val Met Ala Ser His
            85              90              95
His Ser Lys Arg Arg Gly Arg Ala Ser Ser Glu Ser Gln Gly Leu Gly
            100             105             110
Ala Gly Val Arg Thr Glu Ala Asp Val Xaa Glu Glu Ala Leu Arg Arg
        115             120             125
Lys Leu Glu Glu Leu Thr Ser Asn Val Ser Asp Gln Glu Thr Ser Ser
        130             135             140
Glu Glu Glu Glu Ala Lys Asp Glu Lys Ala Glu Pro Asn Arg Asp Lys
145             150             155             160
```

```
      Ser Val Gly Pro Leu Pro Gln Ala Asp Pro Glu Val Gly Thr Xaa Ala
                  165                 170                 175
      Ile Lys Pro Thr Asp Arg Lys Lys Ala Pro Arg Thr Leu Gly Thr Pro
                  180                 185                 190
  5   Ser Val Asn Arg Thr Thr Asp Glu Glu Leu Ser Xaa Leu Xaa Asp Arg
                  195                 200                 205
      Xaa Ala Ile Asp Arg Leu
          210


 10       <210> 1076
          <211> 111
          <212> PRT
          <213> Homo sapiens


 15       <400> 1076
      Pro Ala Thr Ser Val Thr Arg Arg Pro Arg Pro Arg Arg Arg Lys Pro
       1           5                 10                 15
      Arg Thr Lys Arg Gln Ser Pro Thr Gly Thr Asn Gln Leu Gly Leu Ser
                  20                 25                 30
 20   Pro Arg Arg Thr Arg Arg Trp Ala Arg Xaa Pro Ser Asn Gln Gln Thr
                  35                 40                 45
      Gly Lys Lys Pro Pro Gly Pro Trp Gly Pro Arg Gln Ser Thr Gly Pro
                  50                 55                 60
      Gln Met Arg Ser Cys Gln Xaa Trp Xaa Thr Xaa Trp Gln Leu Thr Gly
 25   65                 70                 75                 80
      Phe Lys Ser Xaa Thr Gly Lys Xaa Ser Xaa Val Phe Xaa Thr Phe Glu
                  85                 90                 95
      Xaa Lys Asp Cys Asn Pro Leu Arg Ala Pro Arg Ala Ser Thr Gly
                  100                105                110
 30
          <210> 1077
          <211> 236
          <212> PRT
          <213> Homo sapiens
 35
          <400> 1077
      Ala Phe Leu Ala Ser Leu Glu Arg Gly Arg Arg Ile Ile Asp Arg Thr
       1           5                 10                 15
      Leu Arg Thr Leu Gly Pro Ser Asp Met Phe Pro Ala Glu Val Ala Trp
 40               20                 25                 30
      Ser Leu Ser Leu Cys Gly Asp Leu Gly Leu Pro Leu Asp Met Val Glu
                  35                 40                 45
      Leu Met Leu Glu Glu Lys Gly Val Gln Leu Asp Ser Ala Gly Leu Glu
                  50                 55                 60
 45   Arg Leu Ala Gln Glu Glu Ala Gln His Arg Ala Arg Gln Ala Glu Pro
      65                 70                 75                 80
      Val Gln Lys Gln Gly Leu Trp Leu Asp Val His Ala Leu Gly Glu Leu
                  85                 90                 95
      Gln Arg Gln Gly Val Pro Pro Thr Asp Asp Ser Pro Lys Tyr Asn Tyr
 50               100                105                110
      Ser Leu Arg Pro Ser Gly Ser Tyr Glu Phe Gly Thr Cys Glu Ala Gln
                  115                120                125
      Val Leu Gln Leu Tyr Thr Glu Asp Gly Thr Ala Val Ala Ser Val Gly
                  130                135                140
 55   Lys Gly Gln Arg Cys Gly Leu Leu Leu Asp Arg Thr Asn Phe Tyr Ala
      145                150                155                160
      Glu Gln Gly Gly Gln Ala Ser Asp Arg Gly Tyr Leu Val Arg Ala Gly
                  165                170                175
      Gln Glu Asp Val Leu Phe Pro Val Ala Arg Ala Gln Val Cys Gly Gly
 60               180                185                190
      Phe Ile Leu His Glu Ala Ile Xaa Pro Glu Cys Leu Arg Leu Gly Asp
                  195                200                205
      Gln Val Gln Leu His Val Asp Xaa Ala Trp Arg Leu Ser Cys Met Ala
```

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```
           210                 215                 220
      Lys His Thr Gly Thr His Leu Ala Glu Leu Gly Thr
      225                 230                 235
```

```
          <210> 1078
          <211> 125
          <212> PRT
          <213> Homo sapiens


          <400> 1078
     Thr Pro Leu Asp Trp Ser Gly Trp Pro Lys Arg Arg Pro Ser Thr Gly
      1               5                  10                  15
     His Gly Arg Leu Ser Gln Phe Arg Ser Arg Asp Cys Gly Leu Met Ser
                20                  25                  30
     Met Arg Leu Gly Ser Cys Ser Ala Lys Glu Cys Pro Gln Leu Thr Thr
                35                  40                  45
     Ala Pro Ser Thr Thr Thr Pro Cys Asp Pro Ala Glu Val Met Ser Ser
                50                  55                  60
     Ala Pro Val Arg Pro Arg Cys Cys Asn Cys Ile Gln Arg Thr Gly Gln
     65                  70                  75                  80
     Gln Trp Pro Pro Trp Gly Lys Ala Ser Ala Val Ala Ser Ser Trp Thr
                     85                  90                  95
     Gly Pro Thr Ser Thr Gln Asn Arg Gly Ala Arg Leu Gln Thr Val Ala
                100                 105                 110
     Thr Trp Cys Gly Gln Gly Lys Arg Thr Cys Cys Ser Gln
                115                 120                 125


          <210> 1079
          <211> 180
          <212> PRT
          <213> Homo sapiens


          <400> 1079
     Asn Leu His Arg Pro Gly Pro Gly Leu Leu Gly Thr Ala Arg Pro Leu
      1               5                  10                  15
     Ala Leu Pro Ala Pro Gly Ser His Gly Leu Lys Pro Gly Pro Pro Val
                20                  25                  30
     Leu Arg Arg Ser Trp Ser Cys Pro Arg Gly Gly His Ser Ala Gly Leu
                35                  40                  45
     Ser Pro Arg Arg Pro Leu Leu Ser Arg Pro Leu Tyr Thr Val Ala Thr
                50                  55                  60
     Pro Gly Pro His Arg Cys Arg Thr His Asn Phe Arg Trp Val Ala Gly
     65                  70                  75                  80
     Ser Ser Cys Thr Trp Gly Cys Arg Gln Leu Gly Ala Leu Leu Gly Ala
                     85                  90                  95
     Ala Ala Pro Gln Ala His Gly His Gln Ala Thr Ile Pro Ala Ser Glu
                100                 105                 110
     Leu Ala Gln Pro Ala Val Pro Gly Ala Gly Pro Pro Leu Gly Pro Thr
                115                 120                 125
     Ala Pro Val Gln Arg Ser Leu Ala Gly Pro Leu Ser Pro Pro Ala Ser
                130                 135                 140
     Ala Leu Pro Cys Pro Arg Gly Val Pro Gly Leu His Thr Val Thr Arg
     145                 150                 155                 160
     Thr Arg Pro Leu Gln Gln Gly Thr Tyr Leu Lys Ala Pro Gly Ser Ser
                     165                 170                 175
     Glu Ser Asp Gln
                180


          <210> 1080
          <211> 137
          <212> PRT
          <213> Homo sapiens
```

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```
        <400> 1080
        Thr Arg Ala Pro Xaa Ala Thr Xaa Trp Gly Phe Xaa Ile Gln Ala Pro
        1               5               10              15
        Gln Gly Pro Met Xaa Lys Xaa Phe Leu Leu Cys Pro Phe Gln Gly Xaa
                    20              25              30
        Pro Arg Val Pro Ile Ala Pro Pro Phe His Asn Xaa Arg Ala Trp Gly
                35              40              45
        Thr Gly Lys Cys Ser Lys Pro Pro Ile Gly Gly Pro Arg Ala Trp Gly
            50              55              60
        Xaa Xaa Lys Trp Trp Ala Gln Gly Pro Gly Lys His Leu Xaa Asp Xaa
        65              70              75                      80
        Gly Lys Leu Ala Leu Gln Tyr Ser Pro Lys Pro Met Xaa Ser Ser Gln
                    85              90              95
        Leu Leu Thr Gln Val Arg Pro Arg Asp Pro Thr Trp Thr Lys Gly Asn
                    100             105             110
        Ala Arg Ser Pro Glu Gly Ala Ser Arg Thr Phe Pro His Ala Glu Ala
                    115             120             125
        Arg Thr Arg Gly Trp Arg Pro Ser Ser
                    130             135
```

```
        <210> 1081
        <211> 235
        <212> PRT
        <213> Homo sapiens
```

```
        <400> 1081
        Ala Leu Asp Cys Asn Ser Glu Glu Asn Asn Phe Leu Thr Arg Glu Asn
        1               5               10              15
        Gly Glu Pro Asp Ala Phe Asp Glu Leu Phe Asp Ala Asp Gly Asp Gly
                    20              25              30
        Glu Ser Tyr Thr Glu Glu Ala Asp Asp Gly Glu Thr Gly Glu Thr Arg
                    35              40              45
        Asp Glu Lys Glu Asn Leu Ala Thr Leu Phe Gly Asp Met Glu Asp Leu
            50              55              60
        Thr Asp Glu Glu Glu Val Pro Ala Ser Gln Ser Thr Glu Asn Arg Val
        65                  70                  75                  80
        Leu Pro Ala Pro Ala Pro Arg Arg Glu Lys Thr Asn Glu Glu Leu Gln
                    85              90              95
        Glu Glu Leu Arg Asn Leu Gln Glu Gln Met Lys Ala Leu Gln Glu Gln
                    100             105             110
        Leu Lys Val Thr Thr Ile Lys Gln Thr Ala Ser Pro Ala Arg Leu Gln
                    115             120             125
        Lys Ser Pro Val Glu Lys Ser Pro Arg Pro Pro Leu Lys Glu Arg Arg
                    130             135             140
        Val Gln Arg Ile Gln Glu Ser Thr Cys Phe Ser Ala Glu Leu Asp Val
        145                 150             155                 160
        Pro Ala Leu Pro Arg Thr Lys Arg Val Ala Arg Thr Pro Lys Ala Ser
                    165             170             175
        Pro Pro Asp Pro Lys Ser Ser Ser Ser Arg Met Thr Ser Ala Pro Ser
                    180             185             190
        Gln Pro Leu Gln Thr Ile Ser Arg Asn Lys Pro Ser Gly Ile Leu Glu
                    195             200             205
        Val Lys Leu Xaa Gly Thr Pro Arg Lys Xaa Leu Gly Lys Arg Leu Xaa
        210                 215                 220
        Pro Ile Cys Val Glu Thr Phe Xaa Trp Ser Trp
        225             230                 235
```

```
        <210> 1082
        <211> 72
        <212> PRT
        <213> Homo sapiens

        <400> 1082
```

```
Val Glu Asn Gln Val Ile Ile Val Phe Ser Lys Leu Ser Val Asp Asp
1               5                   10              15
Cys Ile Thr Ser Phe Thr Glu Val Phe Ala Gln Lys Leu Glu Gly Lys
            20                  25              30
Gln Arg Ala Met Phe Leu Tyr Leu Leu Val Ile Glu Cys Ser Leu Leu
            35                  40              45
Tyr His Asn Lys Ile Leu Val Phe Ile Arg Thr Pro Arg Gly Lys Arg
        50                  55              60
Ile Trp Leu Asn Ser His Ser Arg
65                  70
```

```
<210> 1083
<211> 52
<212> PRT
<213> Homo sapiens
```

```
<400> 1083
Gly Thr Lys Asn Ser Pro Glu Thr Lys Xaa Xaa Ala Arg Xaa Leu Xaa
1               5                   10              15
Ala Leu Pro Thr Lys Met Xaa Asn Gly Asp Gly Asn Val Lys Gly Lys
            20                  25              30
Xaa Leu Gly Pro Lys Asp Arg Arg Xaa Lys Phe Trp Phe Xaa Lys Xaa
            35                  40                  45
Arg Arg Pro Cys
        50
```

```
<210> 1084
<211> 242
<212> PRT
<213> Homo sapiens
```

```
<400> 1084
Gln Arg Glu Arg Ala Arg Pro Ser Gly Ala Arg Arg Met Tyr Asp Asn
1               5                   10              15
Met Ser Thr Met Val Tyr Ile Lys Glu Asp Lys Leu Glu Lys Leu Thr
            20                  25              30
Gln Asp Glu Ile Ile Ser Lys Thr Lys Gln Val Ile Gln Gly Leu Glu
            35                  40                  45
Ala Leu Lys Asn Glu His Asn Ser Ile Leu Gln Ser Leu Leu Glu Thr
        50                  55                  60
Leu Lys Cys Leu Lys Lys Asp Asp Glu Ser Asn Leu Val Glu Glu Lys
65                  70                  75                  80
Ser Asn Met Ile Arg Lys Ser Leu Glu Met Leu Glu Leu Gly Leu Ser
            85                  90                  95
Glu Ala Gln Val Met Met Ala Leu Ser Asn His Leu Asn Ala Val Glu
            100                 105                 110
Ser Glu Lys Gln Lys Leu Arg Ala Gln Val Arg Arg Leu Cys Gln Glu
            115                 120                 125
Asn Gln Trp Leu Arg Asp Glu Leu Ala Asn Thr Gln Gln Lys Leu Gln
        130                 135                 140
Lys Ser Glu Gln Ser Val Ala Gln Leu Glu Glu Glu Lys Lys His Leu
145                 150                 155                 160
Glu Phe Met Asn Gln Leu Lys Lys Tyr Asp Asp Asp Ile Ser Pro Ser
            165                 170                 175
Glu Asp Lys Asp Thr Asp Ser Thr Lys Glu Pro Leu Asp Asp Leu Phe
            180                 185                 190
Pro Asn Asp Glu Asp Asp Pro Gly Gln Gly Ile Gln Gln Gln His Ser
        195                 200                 205
Ser Ala Ala Ala Ala Ala Thr Gly Arg Xaa Arg Xaa Pro Arg Ala Gly
60      210                 215                 220
Xaa Asp Ala Pro Gln Pro Gly Asp Pro Val Pro Leu Ala Arg Ala Pro
225                 230                 235                 240
Thr Arg
```

```
        <210> 1085
        <211> 107
  5     <212> PRT
        <213> Homo sapiens


        <400> 1085
     Gln Arg Glu Arg Ala Arg Pro Ser Gly Ala Arg Arg Met Tyr Asp Asn
 10  1               5                   10                  15
     Met Ser Thr Met Val Tyr Ile Lys Glu Asp Lys Leu Glu Lys Leu Thr
                 20                  25                  30
     Gln Asp Glu Ile Ile Ser Lys Thr Lys Gln Val Ile Gln Gly Leu Glu
                 35                  40                  45
 15  Ala Leu Lys Asn Glu His Asn Tyr Ile Leu Gln Ser Leu Leu Xaa Thr
                 50                  55                  60
     Xaa Xaa Cys Leu Lys Lys Asp Asp Glu Ser Asn Phe Gly Gly Gly Glu
     65                  70                  75                  80
     Ile Lys His Asp Arg Lys Ser Leu Xaa Met Phe Gly Ala Xaa Leu Xaa
 20                  85                  90                  95
     Xaa Ala Gln Val Met Met Xaa Phe Ser Asn Tyr
                 100                 105


        <210> 1086
 25     <211> 159
        <212> PRT
        <213> Homo sapiens


        <400> 1086
 30  Gln Arg Glu Arg Ala Arg Pro Ser Gly Ala Arg Arg Met Tyr Asp Asn
     1               5                   10                  15
     Met Ser Thr Met Val Tyr Ile Lys Glu Asp Lys Leu Glu Lys Leu Thr
                 20                  25                  30
     Gln Asp Glu Ile Ile Ser Lys Thr Lys Gln Val Ile Gln Gly Leu Glu
 35              35                  40                  45
     Ala Leu Lys Asn Glu His Asn Ser Ile Leu Gln Ser Leu Leu Glu Thr
                 50                  55                  60
     Leu Lys Cys Leu Lys Lys Asp Asp Glu Ser Asn Leu Val Glu Glu Lys
     65                  70                  75                  80
 40  Ser Asn Met Ile Arg Lys Ser Leu Glu Met Leu Glu Leu Gly Leu Ser
                 85                  90                  95
     Glu Ala Gln Val Met Met Ala Leu Ser Asn His Leu Asn Ala Val Glu
                 100                 105                 110
     Ser Glu Lys Gln Lys Leu Arg Ala Gln Val Arg Arg Leu Cys Gln Glu
 45              115                 120                 125
     Asn Gln Trp Leu Pro Asp Glu Leu Ala His Thr His Xaa Asn Cys Arg
                 130                 135                 140
     Lys Met Thr Ile Cys Gly Leu Thr Gly Gly Gly Glu Lys Thr Ser
     145                 150                 155
 50
        <210> 1087
        <211> 132
        <212> PRT
        <213> Homo sapiens
 55
        <400> 1087
     Gln Arg Glu Arg Ala Arg Pro Ser Gly Ala Arg Arg Met Tyr Asp Asn
     1               5                   10                  15
     Met Ser Thr Met Val Tyr Ile Lys Glu Asp Lys Leu Glu Lys Leu Thr
 60              20                  25                  30
     Gln Asp Glu Ile Ile Ser Lys Thr Lys Gln Val Ile Gln Gly Leu Glu
                 35                  40                  45
     Ala Leu Lys Asn Glu His Asn Ser Ile Leu Gln Ser Leu Leu Glu Thr
```

HIS

```
            50                  55                    60
         Leu Lys Cys Leu Lys Lys Asp Asp Glu Ser Asn Leu Val Glu Glu Lys
         65                  70                    75                    80
         Ser Asn Met Ile Arg Lys Ser Leu Glu Met Leu Glu Leu Gly Leu Ser
5                            85                  90                    95
         Glu Ala Gln Val Met Met Ala Leu Ser Asn His Leu Asn Ala Val Glu
                         100                 105                 110
         Ser Glu Lys Gln Lys Leu Arg Ala Gln Val Arg Pro Ser Val Pro Gly
                     115                 120                 125
10       Glu Ser Met Ala
                 130


            <210> 1088
            <211> 198
15          <212> PRT
            <213> Homo sapiens


            <400> 1088
         Gln Gly Leu Glu Ala Leu Lys Asn Glu His Asn Ser Ile Leu Gln Ser
20       1                   5                   10                  15
         Leu Leu Glu Thr Leu Lys Cys Leu Lys Lys Asp Asp Glu Ser Asn Leu
                         20                  25                  30
         Val Glu Glu Lys Ser Asn Met Ile Arg Lys Ser Leu Glu Met Leu Glu
                     35                  40                  45
25       Leu Gly Leu Ser Glu Ala Gln Val Met Met Ala Leu Ser Asn His Leu
                 50                  55                  60
         Asn Ala Val Glu Ser Glu Lys Gln Lys Leu Arg Ala Gln Val Arg Arg
         65                  70                  75                  80
         Leu Cys Gln Glu Asn Gln Trp Leu Arg Asp Glu Leu Ala Asn Thr Gln
30                           85                  90                  95
         Gln Lys Leu Gln Lys Ser Glu Gln Ser Val Ala Gln Leu Glu Glu Glu
                         100                 105                 110
         Lys Lys His Leu Glu Phe Met Asn Gln Leu Lys Lys Tyr Asp Asp Asp
                     115                 120                 125
35       Ile Ser Pro Ser Glu Asp Lys Asp Thr Asp Ser Thr Lys Glu Pro Leu
                 130                 135                 140
         Asp Asp Leu Phe Pro Asn Asp Glu Asp Asp Pro Gly Gln Gly Ile Gln
         145                 150                 155                 160
         Gln Gln His Ser Ser Ala Ala Ala Ala Ala Thr Gly Arg Xaa Arg Xaa
40                           165                 170                 175
         Pro Arg Ala Gly Xaa Asp Ala Pro Gln Pro Gly Asp Pro Val Pro Leu
                     180                 185                 190
         Ala Arg Ala Pro Thr Arg
                 195
45
            <210> 1089
            <211> 96
            <212> PRT
            <213> Homo sapiens
50
            <400> 1089
         Gln Arg Glu Arg Ala Arg Pro Ser Gly Ala Arg Arg Met Tyr Asp Asn
         1                   5                   10                  15
         Met Ser Thr Met Val Tyr Ile Lys Glu Asp Lys Leu Glu Lys Leu Thr
55                           20                  25                  30
         Gln Asp Glu Ile Ile Ser Lys Thr Lys Gln Val Ile Gln Gly Leu Glu
                         35                  40                  45
         Ala Leu Lys Asn Glu His Asn Ser Ile Leu Gln Ser Leu Leu Glu Thr
                 50                  55                  60
60       Leu Lys Cys Leu Lys Lys Asp Asp Glu Ser Asn Leu Val Glu Glu Lys
         65                  70                  75                  80
         Ser Asn Met Ile Pro Glu Val Thr Gly Asp Val Gly Ala Arg Pro Glu
                         85                  90                  95
```

```
            <210> 1090
            <211> 646
            <212> PRT
 5          <213> Homo sapiens


            <400> 1090
     Ser Pro Arg Arg Glu Thr Gly Lys Glu Ser Arg Lys Ser Gln Ser Pro
     1             5                   10                  15
10   Ser Pro Lys Asn Glu Ser Ala Arg Gly Arg Lys Lys Ser Arg Ser Gln
                 20                  25                  30
     Ser Pro Lys Lys Asp Ile Ala Arg Glu Arg Arg Gln Ser Gln Ser Arg
                 35                  40                  45
     Ser Pro Lys Arg Asp Thr Thr Arg Glu Ser Arg Arg Ser Glu Ser Leu
15       50                  55                  60
     Ser Pro Arg Arg Glu Thr Ser Arg Glu Asn Lys Arg Ser Gln Pro Arg
     65                  70                  75                  80
     Val Lys Asp Ser Ser Pro Gly Glu Lys Ser Arg Ser Gln Ser Arg Glu
                 85                  90                  95
20   Arg Glu Ser Asp Arg Asp Gly Gln Arg Arg Glu Arg Glu Arg Arg Thr
                 100                 105                 110
     Arg Lys Trp Ser Arg Ser Arg Ser His Ser Arg Ser Pro Ser Arg Cys
                 115                 120                 125
     Arg Thr Lys Ser Lys Ser Ser Ser Phe Gly Arg Ile Asp Arg Asp Ser
25       130                 135                 140
     Tyr Ser Pro Arg Trp Lys Gly Arg Trp Ala Asn Asp Gly Trp Arg Cys
     145                 150                 155                 160
     Pro Pro Gly Asn Asp Arg Tyr Arg Lys Asn Asp Pro Xaa Lys Pro Asn
                 165                 170                 175
30   Glu Asn Thr Xaa Lys Glu Lys Asn Asp Ile His Leu Asp Ala Asp Asp
                 180                 185                 190
     Pro Asn Ser Ala Asp Lys His Arg Asn Asp Cys Pro Asn Trp Ile Thr
                 195                 200                 205
     Glu Lys Ile Asn Ser Gly Pro Asp Pro Arg Thr Arg Asn Pro Glu Lys
35       210                 215                 220
     Leu Lys Glu Ser His Trp Glu Glu Asn Arg Asn Glu Asn Ser Gly Asn
     225                 230                 235                 240
     Ser Trp Asn Lys Asn Phe Gly Ser Gly Trp Val Ser Asn Arg Gly Arg
                 245                 250                 255
40   Gly Arg Gly Asn Arg Gly Arg Gly Thr Tyr Arg Ser Ser Phe Ala Tyr
                 260                 265                 270
     Lys Asp Gln Asn Glu Asn Arg Trp Gln Asn Arg Lys Pro Leu Ser Gly
                 275                 280                 285
     Asn Ser Asn Ser Ser Gly Ser Glu Ser Phe Lys Phe Val Glu Gln Gln
45       290                 295                 300
     Ser Tyr Lys Arg Lys Ser Glu Gln Glu Phe Ser Phe Asp Thr Pro Ala
     305                 310                 315                 320
     Asp Arg Ser Gly Trp Thr Ser Ala Ser Ser Trp Ala Val Arg Lys Thr
                 325                 330                 335
50   Leu Pro Ala Asp Val Gln Asn Tyr Tyr Ser Arg Arg Gly Arg Asn Ser
                 340                 345                 350
     Ser Gly Pro Gln Ser Gly Trp Met Lys Gln Glu Glu Glu Thr Ser Gly
                 355                 360                 365
     Gln Asp Ser Ser Leu Lys Asp Gln Thr Asn Gln Gln Val Asp Gly Ser
55       370                 375                 380
     Gln Leu Pro Ile Asn Met Met Gln Pro Gln Met Asn Val Met Gln Gln
     385                 390                 395                 400
     Gln Met Asn Ala Gln His Gln Pro Met Asn Ile Phe Pro Tyr Pro Val
                 405                 410                 415
     Gly Val His Ala Pro Leu Met Asn Ile Gln Arg Asn Pro Phe Asn Ile
60               420                 425                 430
     His Pro Gln Leu Pro Leu His Leu His Thr Gly Val Pro Leu Met Gln
                 435                 440                 445
```

                                        4/7

```
        Val Ala Thr Pro Thr Ser Val Ser Gln Gly Leu Pro Pro Pro Pro
            450                 455                 460
        Pro Pro Pro Pro Ser Gln Gln Val Asn Tyr Ile Ala Ser Gln Pro Asp
        465                 470                 475                 480
   5    Gly Lys Gln Leu Gln Gly Ile Pro Ser Ser Ser His Val Ser Asn Asn
                        485                 490                 495
        Met Ser Thr Pro Val Leu Pro Ala Pro Thr Ala Ala Pro Gly Asn Thr
                    500                 505                 510
        Gly Met Val Gln Gly Pro Ser Ser Gly Asn Thr Ser Ser Ser Ser His
  10                515                 520                 525
        Ser Lys Ala Ser Asn Ala Ala Val Lys Leu Ala Glu Ser Lys Val Ser
            530                 535                 540
        Val Ala Val Glu Ala Ser Ala Asp Ser Ser Lys Thr Asp Lys Lys Leu
        545                 550                 555                 560
  15    Gln Ile Gln Glu Lys Ala Ala Gln Glu Val Lys Leu Ala Ile Lys Pro
                        565                 570                 575
        Phe Tyr Gln Asn Lys Asp Ile Thr Lys Glu Glu Tyr Lys Glu Ile Val
                    580                 585                 590
        Arg Lys Ala Val Asp Lys Val Cys His Ser Lys Ser Gly Glu Val Asn
  20            595                 600                 605
        Ser Thr Lys Val Ala Asn Leu Val Lys Ala Tyr Val Asp Lys Tyr Lys
            610                 615                 620
        Tyr Ser Arg Lys Gly Ser Gln Lys Lys Thr Leu Glu Glu Pro Val Ser
        625                 630                 635                 640
  25    Thr Glu Lys Asn Ile Gly
                        645


            <210> 1091
            <211> 155
  30        <212> PRT
            <213> Homo sapiens


            <400> 1091
        Arg Thr Arg Asn Pro Glu Lys Leu Lys Glu Ser His Trp Glu Glu Asn
  35    1                5                   10                  15
        Arg Asn Glu Asn Ser Gly Asn Ser Trp Asn Lys Asn Phe Gly Ser Gly
                        20                  25                  30
        Trp Val Ser Asn Arg Gly Arg Gly Arg Gly Asn Arg Gly Arg Gly Thr
                    35                  40                  45
  40    Tyr Arg Ser Ser Phe Ala Tyr Lys Asp Gln Asn Glu Asn Arg Trp Gln
            50                  55                  60
        Asn Arg Lys Pro Leu Ser Gly Asn Ser Asn Ser Ser Gly Ser Glu Ser
        65                  70                  75                  80
        Phe Lys Phe Val Glu Gln Gln Ser Tyr Lys Arg Lys Ser Glu Gln Glu
  45                    85                  90                  95
        Phe Ser Phe Asp Thr Pro Ala Asp Arg Ser Gly Trp Thr Ser Ala Ser
                    100                 105                 110
        Ser Trp Ala Val Arg Lys Thr Leu Pro Ala Asp Val Gln Asn Tyr Tyr
            115                 120                 125
  50    Ser Arg Arg Gly Arg Asn Ser Ser Gly Pro Gln Ser Gly Trp Met Lys
            130                 135                 140
        Gln Glu Glu Glu Thr Ser Gly Arg Ile Leu Ala
        145                 150                 155


  55        <210> 1092
            <211> 124
            <212> PRT
            <213> Homo sapiens


  60        <400> 1092
        Val Lys Ser Val Cys His Ser Lys Ala Ser Asn Ala Ala Val Lys Leu
        1                5                   10                  15
        Ala Glu Ser Lys Val Ser Val Ala Val Glu Ala Ser Ala Asp Ser Ser
```

418

```
                     20                    25                    30
     Lys Thr Asp Lys Lys Leu Gln Ile Gln Glu Lys Ala Ala Gln Glu Val
                 35                    40                    45
     Lys Leu Ala Ile Lys Pro Phe Tyr Gln Asn Lys Asp Ile Thr Lys Glu
  5          50                    55                    60
     Glu Tyr Lys Glu Ile Val Arg Lys Ala Val Asp Lys Val Cys His Ser
     65                    70                    75                    80
     Lys Ser Gly Glu Val Asn Ser Thr Lys Val Ala Asn Leu Val Lys Ala
                     85                    90                    95
 10  Tyr Val Asp Lys Tyr Lys Tyr Ser Arg Lys Gly Ser Gln Lys Lys Thr
                 100                   105                   110
     Leu Glu Glu Pro Val Ser Thr Glu Lys Asn Ile Gly
             115                   120
```

15   <210> 1093
        <211> 199
        <212> PRT
        <213> Homo sapiens

20   <400> 1093

```
     Ser Pro Arg Arg Glu Thr Gly Lys Glu Ser Arg Lys Ser Gln Ser Pro
      1               5                    10                    15
     Ser Pro Lys Asn Glu Ser Ala Arg Gly Arg Lys Lys Ser Arg Ser Gln
                 20                    25                    30
 25  Ser Pro Lys Lys Asp Ile Ala Arg Glu Arg Arg Gln Ser Gln Ser Arg
                 35                    40                    45
     Ser Pro Lys Arg Asp Thr Thr Arg Glu Ser Arg Arg Ser Glu Ser Leu
                 50                    55                    60
     Ser Pro Arg Arg Glu Thr Ser Arg Glu Asn Lys Arg Ser Gln Pro Arg
 30  65                    70                    75                    80
     Val Lys Asp Ser Ser Pro Gly Glu Lys Ser Arg Ser Gln Ser Arg Glu
                     85                    90                    95
     Arg Glu Ser Asp Arg Asp Gly Gln Arg Arg Glu Arg Glu Arg Arg Thr
                 100                   105                   110
 35  Arg Lys Trp Ser Arg Ser Arg Ser His Ser Arg Ser Pro Ser Arg Cys
                 115                   120                   125
     Arg Thr Lys Ser Lys Ser Ser Ser Phe Gly Arg Ile Asp Arg Asp Ser
                 130                   135                   140
     Tyr Ser Pro Arg Trp Lys Gly Arg Trp Ala Asn Asp Gly Trp Arg Cys
 40  145               150                   155                   160
     Pro Pro Gly Asn Asp Arg Tyr Arg Lys Asn Asp Pro Xaa Lys Pro Asn
                 165                   170                   175
     Glu Asn Thr Xaa Lys Glu Lys Asn Asp Ile His Leu Asp Ala Asp Asp
                 180                   185                   190
 45  Pro Asn Ser Cys Gly Lys His
             195
```

        <210> 1094
        <211> 225
 50   <212> PRT
        <213> Homo sapiens

        <400> 1094

```
     Asn Asp Ile His Leu Asp Ala Asp Asp Pro Asn Ser Ala Asp Lys His
 55   1               5                    10                    15
     Arg Asn Asp Cys Pro Asn Trp Ile Thr Glu Lys Ile Asn Ser Gly Pro
                 20                    25                    30
     Asp Pro Arg Thr Arg Asn Pro Glu Lys Leu Lys Glu Ser His Trp Glu
                 35                    40                    45
 60  Glu Asn Arg Asn Glu Asn Ser Gly Asn Ser Trp Asn Lys Asn Phe Gly
             50                    55                    60
     Ser Gly Trp Val Ser Asn Arg Gly Arg Gly Arg Gly Asn Arg Gly Arg
     65                    70                    75                    80
```

```
      Gly Thr Tyr Arg Ser Ser Phe Ala Tyr Lys Asp Gln Asn Glu Asn Arg
                  85              90                  95
      Trp Gln Asn Arg Lys Pro Leu Ser Gly Asn Ser Asn Ser Ser Gly Ser
                  100             105             110
 5    Glu Ser Phe Lys Phe Val Glu Gln Gln Ser Tyr Lys Arg Lys Ser Glu
                  115             120             125
      Gln Glu Phe Ser Phe Asp Thr Pro Ala Asp Arg Ser Gly Trp Thr Ser
                  130             135             140
      Ala Ser Ser Trp Ala Val Arg Lys Thr Leu Pro Ala Asp Val Gln Asn
 10   145             150             155             160
      Tyr Tyr Ser Arg Arg Gly Arg Asn Ser Ser Gly Pro Gln Ser Gly Trp
                  165             170             175
      Met Lys Gln Glu Glu Glu Thr Ser Gly Gln Asp Ser Ser Leu Lys Asp
                  180             185·            190
 15   Gln Thr Asn Gln Gln Val Asp Gly Ser Gln Leu Pro Ile Asn Met Met
                  195             200             205
      Gln Pro Ala Asn Glu Cys Asn Ala Ala Gln Met Asn Ala His Thr Ser
                  210             215             220
      Leu
 20   225


              <210> 1095
              <211> 246
              <212> PRT
 25           <213> Homo sapiens


              <400> 1095
      Thr Leu Gly Leu Lys Thr Ser Gly Gln Asp Ser Ser Leu Lys Asp Gln
      1               5               10              15
 30   Thr Asn Gln Gln Val Asp Gly Ser Gln Leu Pro Ile Asn Met Met Gln
                  20              25              30
      Pro Gln Met Asn Val Met Gln Gln Gln Met Asn Ala Gln His Gln Pro
                  35              40              45
      Met Asn Ile Phe Pro Tyr Pro Val Gly Val His Ala Pro Leu Met Asn
 35   50              55              60
      Ile Gln Arg Asn Pro Phe Asn Ile His Pro Gln Leu Pro Leu His Leu
      65              70              75              80
      His Thr Gly Val Pro Leu Met Gln Val Ala Thr Pro Thr Ser Val Ser
                  85              90              95
 40   Gln Gly Leu Pro Pro Pro Pro Pro Pro Pro Pro Ser Gln Gln Val
                  100             105             110
      Asn Tyr Ile Ala Ser Gln Pro Asp Gly Lys Gln Leu Gln Gly Ile Pro
                  115             120             125
      Ser Ser Ser His Val Ser Asn Asn Met Ser Thr Pro Val Leu Pro Ala
 45   130             135             140
      Pro Thr Ala Ala Pro Gly Asn Thr Gly Met Val Gln Gly Pro Ser Ser
      145             150             155             160
      Gly Asn Thr Ser Ser Ser Ser His Ser Lys Ala Ser Asn Ala Ala Val
                  165             170             175
 50   Lys Leu Ala Glu Ser Lys Val Ser Val Ala Val Glu Ala Ser Ala Asp
                  180             185             190
      Ser Ser Lys Thr Asp Lys Lys Leu Gln Ile Gln Glu Lys Ala Ala Gln
                  195             200             205
      Glu Val Lys Leu Ala Ile Lys Pro Phe Tyr Gln Asn Lys Asp Ile Thr
 55   210             215             220
      Lys Glu Glu Tyr Lys Glu Ile Val Arg Lys Ala Val Xaa Lys Val Gly
      225             230             235             240
      Ile Xaa Arg Val Glu Lys
                  245
 60
              <210> 1096
              <211> 214
              <212> PRT
```

```
<213> Homo sapiens

<400> 1096
Lys Lys Val Phe Leu Pro Thr Ser Leu Cys Ile Ser Tyr Gly Gln Trp
1               5                   10                  15
Met Glu Glu Lys Lys Glu Gln Met Glu Arg Asp Gly Cys Ser Glu Gln
            20                  25                  30
Glu Ser Gln Pro Cys Ala Phe Ile Gly Ile Gly Asn Ser Asp Gln Glu
            35                  40                  45
Met Gln Gln Leu Asn Leu Glu Gly Lys Asn Tyr Cys Thr Ala Lys Thr
        50                  55                  60
Leu Tyr Ile Ser Asp Ser Asp Lys Arg Lys His Phe Met Leu Ser Val
65                  70                  75                  80
Lys Met Phe Tyr Gly Asn Ser Asp Asp Ile Gly Val Phe Leu Ser Lys
                85                  90                  95
Arg Ile Lys Val Ile Ser Lys Pro Ser Lys Lys Lys Gln Ser Leu Lys
                100                 105                 110
Asn Ala Asp Leu Cys Ile Ala Ser Gly Thr Lys Val Ala Leu Phe Asn
            115                 120                 125
Arg Leu Arg Ser Gln Thr Val Ser Thr Arg Tyr Leu His Val Glu Gly
        130                 135                 140
Gly Asn Phe His Ala Ser Ser Gln Gln Trp Gly Ala Phe Phe Ile His
145                 150                 155                 160
Leu Leu Asp Asp Asp Glu Ser Glu Gly Glu Glu Phe Thr Val Arg Asp
                165                 170                 175
Gly Tyr Ile His Tyr Gly Gln Thr Val Lys Leu Val Cys Ser Val Thr
                180                 185                 190
Gly Met Ala Leu Pro Arg Leu Ile Ile Arg Lys Val Asp Lys Xaa Thr
                195                 200                 205
Ala Leu Phe Gly Cys Arg
                210


<210> 1097
<211> 214
<212> PRT
<213> Homo sapiens

<400> 1097
Lys Lys Val Phe Leu Pro Thr Ser Leu Cys Ile Ser Tyr Gly Gln Trp
1               5                   10                  15
Met Glu Glu Lys Lys Glu Gln Met Glu Arg Asp Gly Cys Ser Glu Gln
            20                  25                  30
Glu Ser Gln Pro Cys Ala Phe Ile Gly Ile Gly Asn Ser Asp Gln Glu
            35                  40                  45
Met Gln Gln Leu Asn Leu Glu Gly Lys Asn Tyr Cys Thr Ala Lys Thr
        50                  55                  60
Leu Tyr Ile Ser Asp Ser Asp Lys Arg Lys His Phe Met Leu Ser Val
65                  70                  75                  80
Lys Met Phe Tyr Gly Asn Ser Asp Asp Ile Gly Val Phe Leu Ser Lys
                85                  90                  95
Arg Ile Lys Val Ile Ser Lys Pro Ser Lys Lys Lys Gln Ser Leu Lys
                100                 105                 110
Asn Ala Asp Leu Cys Ile Ala Ser Gly Thr Lys Val Ala Leu Phe Asn
            115                 120                 125
Arg Leu Arg Ser Gln Thr Val Ser Thr Arg Tyr Leu His Val Glu Gly
        130                 135                 140
Gly Asn Phe His Ala Ser Ser Gln Gln Trp Gly Ala Phe Phe Ile His
145                 150                 155                 160
Leu Leu Asp Asp Asp Glu Ser Glu Gly Glu Glu Phe Thr Val Arg Asp
                165                 170                 175
Gly Tyr Ile His Tyr Gly Gln Thr Val Lys Leu Val Cys Ser Val Thr
                180                 185                 190
Gly Met Ala Leu Pro Arg Leu Ile Ile Arg Lys Val Asp Lys Xaa Thr
```

421

```
              195                      200                     205
     Ala Leu Phe Gly Cys Arg
              210
```

```
          <210> 1098
          <211> 178
          <212> PRT
          <213> Homo sapiens


          <400> 1098
     Met Met Gly Leu Leu Gly Gln Ser Leu Xaa Gln Ile Xaa Gln Ser Ile
     1                   5                   10                  15
     His Phe Met Arg Glu Trp Ala Xaa Ser Xaa Ala Pro Val Thr Pro Val
                     20                  25                  30
     Pro Val Val Glu Ser Xaa Gln Leu Asn Gly Gly Gly Asp Val Ala Met
                 35                  40                  45
     Leu Glu Leu Thr Xaa Gln Asn Phe Thr Pro Asn Leu Arg Val Trp Phe
             50                  55                  60
     Gly Asp Val Glu Ala Glu Thr Met Tyr Arg Cys Gly Glu Ser Met Leu
     65                  70                  75                  80
     Cys Val Val Pro Asp Ile Xaa Ala Phe Arg Glu Gly Trp Arg Trp Val
                     85                  90                  95
     Arg Gln Pro Val Gln Val Pro Val Thr Leu Val Arg Asn Asp Gly Ile
                     100                 105                 110
     Ile Tyr Ser Thr Ser Leu Thr Phe Thr Tyr Thr Pro Glu Pro Gly Pro
                 115                 120                 125
     Arg Pro His Cys Ser Ala Ala Gly Ala Ile Leu Arg Ala Asn Ser Ser
                 130                 135                 140
     Gln Val Pro Pro Asn Glu Ser Asn Thr Asn Ser Glu Gly Ser Tyr Thr
     145                 150                 155                 160
     Asn Ala Ser Thr Asn Ser Thr Ser Val Thr Ser Ser Thr Ala Thr Val
                     165                 170                 175
     Val Ser
```

```
          <210> 1099
          <211> 218
          <212> PRT
          <213> Homo sapiens


          <400> 1099
     Thr Val Leu Ile Leu His Ala Lys Val Ala Gln Lys Ser Tyr Gly Asn
     1                   5                   10                  15
     Glu Lys Arg Phe Phe Cys Pro Pro Pro Cys Val Tyr Leu Met Gly Ser
                     20                  25                  30
     Gly Trp Lys Lys Lys Lys Glu Gln Met Glu Arg Asp Gly Cys Ser Glu
                 35                  40                  45
     Gln Glu Ser Gln Pro Cys Ala Phe Ile Gly Ile Gly Asn Ser Asp Gln
             50                  55                  60
     Glu Met Gln Gln Leu Asn Leu Glu Gly Lys Asn Tyr Cys Thr Ala Lys
     65                  70                  75                  80
     Thr Leu Tyr Ile Ser Asp Ser Asp Lys Arg Lys His Phe Met Leu Ser
                     85                  90                  95
     Val Lys Met Phe Tyr Gly Asn Ser Asp Asp Ile Gly Val Phe Leu Ser
                     100                 105                 110
     Lys Arg Ile Lys Val Ile Ser Lys Pro Ser Lys Lys Lys Gln Ser Leu
                 115                 120                 125
     Lys Asn Ala Asp Leu Cys Ile Ala Ser Gly Thr Lys Val Ala Leu Phe
                 130                 135                 140
     Asn Arg Leu Arg Ser Gln Thr Val Ser Thr Arg Tyr Leu His Val Glu
     145                 150                 155                 160
     Gly Gly Asn Phe His Ala Ser Ser Gln Gln Trp Gly Ala Phe Phe Ile
                     165                 170                 175
```

```
His Leu Leu Asp Asp Asp Glu Ser Glu Gly Glu Glu Phe Thr Val Pro
            180             185             190
Arg Trp Leu His Pro Leu Trp Thr Asn Ser Gln Thr Cys Val Leu Ser
        195             200             205
Tyr Trp His Gly Leu Pro Lys Ile Asp Asn
    210             215
```

```
<210> 1100
<211> 201
<212> PRT
<213> Homo sapiens


<400> 1100
Val Val Gln Ala Gly Val Phe Gly Arg Ala Trp Glu His Lys Ser Leu
1               5               10              15
Phe His His Val Ser Arg Thr Ser His Ser Gly Pro Gly Leu Val Ala
            20              25              30
Lys Met Val Lys Pro Lys Tyr Lys Gly Arg Ser Thr Ile Asn Pro Ser
        35              40              45
Lys Ala Ser Thr Asn Pro Asp Arg Val Gln Gly Ala Gly Gly Gln Asn
    50              55              60
Met Arg Asp Arg Ala Thr Ile Arg Arg Leu Asn Met Tyr Arg Gln Lys
65              70              75              80
Glu Arg Arg Asn Ser Arg Gly Lys Ile Ile Lys Pro Leu Gln Tyr Gln
            85              90              95
Ser Thr Val Ala Ser Gly Thr Val Ala Arg Val Glu Pro Asn Ile Lys
            100             105             110
Trp Phe Gly Asn Thr Arg Val Ile Lys Gln Ser Ser Leu Gln Lys Phe
        115             120             125
Gln Glu Glu Met Asp Thr Val Met Lys Asp Pro Tyr Lys Val Val Met
    130             135             140
Lys Gln Ser Lys Leu Pro Met Ser Leu Leu His Asp Arg Ile Arg Pro
145             150             155             160
His Asn Leu Lys Gly His Ile Leu Asp Thr Glu Ser Phe Glu Thr Thr
            165             170             175
Phe Gly Pro Xaa Ser Gln Lys Glu Thr Asp Gln Thr Tyr Phe Ala Ser
            180             185             190
Asp Met Gln Ser Leu Ile Glu Asn Ala
            195             200
```

```
<210> 1101
<211> 210
<212> PRT
<213> Homo sapiens


<400> 1101
Ala Gly Xaa Phe Gly Arg Ala Trp Glu His Lys Ser Leu Phe His His
1               5               10              15
Val Ser Arg Thr Ser His Ser Gly Pro Gly Leu Val Ala Lys Met Val
            20              25              30
Lys Pro Lys Tyr Lys Gly Arg Ser Thr Ile Asn Pro Ser Lys Ala Ser
        35              40              45
Thr Asn Pro Asp Arg Val Gln Gly Ala Gly Gly Gln Asn Met Arg Asp
    50              55              60
Arg Ala Thr Ile Arg Arg Leu Asn Met Tyr Arg Gln Lys Glu Arg Arg
65              70              75              80
Asn Ser Arg Gly Lys Ile Ile Lys Pro Leu Gln Tyr Gln Ser Thr Val
            85              90              95
Ala Ser Gly Thr Val Ala Arg Val Glu Pro Asn Ile Lys Trp Phe Gly
            100             105             110
Asn Thr Arg Val Ile Lys Gln Ser Ser Leu Gln Lys Phe Gln Glu Glu
        115             120             125
Met Asp Thr Val Met Lys Asp Pro Tyr Lys Val Val Met Lys Gln Ser
```

```
             130                    135                    140
         Lys Leu Pro Met Ser Leu Leu His Asp Arg Ile Arg Pro His Asn Leu
         145                    150                    155                    160
  5      Lys Val His Ile Leu Asp Thr Glu Ser Phe Glu Thr Thr Phe Gly Pro
                             165                    170                    175
         Lys Ser Gln Arg Lys Arg Pro Asn Leu Phe Ala Ser Asp Met Gln Ser
                         180                    185                    190
         Leu Ile Glu Asn Ala Glu Met Ser Thr Glu Ser Tyr Asp Pro Gly Gln
                         195                    200                    205
 10      Gly Ser
         210


             <210> 1102
             <211> 232
 15          <212> PRT
             <213> Homo sapiens


             <400> 1102
         Arg Val Gln Ile Pro Ser Phe Lys Glu Asp Xaa Arg Gly Pro Xaa Xaa
 20       1               5                      10                     15
         Val Arg Leu Pro Gln Xaa Cys Gly Arg Phe Phe His Glu Ser Xaa Asp
                         20                     25                     30
         Phe Gly Lys Ile Gln Xaa Xaa Pro Gln Phe Phe Gly Asn Asp Leu Val
                         35                     40                     45
 25      Xaa Val Xaa Val Ser Asp Leu Glu Lys Glu Leu Glu Ser Phe Phe Leu
                 50                     55                     60
         Met Lys Arg Arg Arg Asn Arg Ser Thr Lys Glu Met Met Arg Glu Glu
         65                     70                     75                     80
         Ser Ser Ser Glu Pro Glu Glu Glu Asn Val Gly Asn Asp Thr Lys Ala
 30                          85                     90                     95
         Val Ile Lys Ala Leu Asp Glu Lys Ile Val Lys Tyr Gln Lys Phe Leu
                         100                    105                    110
         Asp Lys Ala Lys Ala Lys Lys Phe Ser Ala Val Arg Ile Ser Lys Gly
                     115                    120                    125
 35      Leu Ser Glu Lys Ile Phe Ala Lys Pro Glu Glu Gln Arg Lys Thr Leu
                 130                    135                    140
         Glu Glu Asp Val Asp Asp Arg Xaa Pro Ser Lys Lys Gly Lys Lys Arg
         145                    150                    155                    160
         Lys Ala Gln Arg Glu Glu Glu Gln Glu His Ser Asn Lys Ala Pro Arg
 40                          165                    170                    175
         Ala Leu Thr Ser Lys Glu Arg Arg Arg Ala Val Arg Gln Gln Arg Pro
                         180                    185                    190
         Lys Lys Val Gly Val Arg Tyr Tyr Glu Thr His Asn Val Lys Asn Arg
                     195                    200                    205
 45      Asn Arg Asn Lys Lys Lys Thr Asn Asp Ser Glu Gly Gln Lys His Lys
                 210                    215                    220
         Arg Lys Lys Phe Arg Gln Lys Gln
         225                    230


 50          <210> 1103
             <211> 210
             <212> PRT
             <213> Homo sapiens


 55          <400> 1103
         Trp Ala Thr Lys Arg Trp Val Ala Val Leu Ser Gln Asp Tyr Pro Thr
          1               5                      10                     15
         Leu Ala Phe His Ala Ser Leu Thr Asn Pro Phe Gly Lys Gly Ala Phe
                         20                     25                     30
 60      Ile Gln Leu Leu Arg Gln Phe Gly Lys Leu His Thr Asp Lys Lys Gln
                 35                     40                     45
         Ile Ser Val Gly Phe Ile Gly Tyr Pro Asn Val Gly Lys Ser Ser Val
                 50                     55                     60
```

```
        Ile Asn Thr Leu Arg Ser Lys Lys Val Cys Asn Val Ala Pro Ile Ala
        65                  70                  75                  80
        Gly Glu Thr Lys Val Trp Gln Tyr Ile Thr Leu Met Arg Arg Ile Phe
                        85                  90                  95
 5      Leu Ile Asp Cys Pro Gly Val Val Tyr Pro Ser Glu Asp Ser Glu Thr
                    100             105             110
        Asp Ile Val Leu Lys Gly Val Val Gln Val Glu Lys Ile Lys Ser Pro
                    115             120             125
        Glu Asp His Ile Gly Ala Val Leu Glu Arg Ala Lys Pro Glu Tyr Ile
10          130             135             140
        Ser Lys Thr Tyr Lys Ile Asp Ser Trp Glu Asn Ala Glu Asp Phe Leu
        145             150             155             160
        Glu Lys Leu Ala Phe Arg Thr Gly Lys Leu Leu Lys Gly Gly Glu Pro
                    165             170             175
15      Asp Leu Gln Thr Val Gly Lys Met Val Leu Asn Asp Trp Gln Lys Gly
                    180             185             190
        Arg Ile Xaa Phe Phe Val Lys Pro Pro Asn Ala Glu Pro Leu Trp Ala
                    195             200             205
        Pro Thr
20          210


                <210> 1104
                <211> 210
                <212> PRT
25              <213> Homo sapiens


                <400> 1104
        Val Gln Ala Gly Val Phe Gly Arg Ala Trp Glu His Lys Ser Leu Phe
        1               5               10                  15
30      His His Val Ser Arg Thr Ser His Ser Gly Pro Gly Leu Val Ala Lys
                        20                  25                  30
        Met Val Lys Pro Lys Tyr Lys Gly Arg Ser Thr Ile Asn Pro Ser Lys
                        35                  40                  45
        Ala Ser Thr Asn Pro Asp Arg Val Gln Gly Ala Gly Gly Gln Asn Met
35          50                  55                  60
        Arg Asp Arg Ala Thr Ile Arg Arg Leu Asn Met Tyr Arg Gln Lys Glu
        65                  70                  75                  80
        Arg Arg Asn Ser Arg Gly Lys Ile Ile Lys Pro Leu Gln Tyr Gln Ser
                        85                  90                  95
40      Thr Val Ala Ser Gly Thr Val Ala Arg Val Glu Pro Asn Ile Lys Trp
                    100             105             110
        Phe Gly Asn Thr Arg Val Ile Lys Gln Ser Ser Leu Gln Lys Phe Gln
                    115             120             125
        Glu Glu Met Asp Thr Val Met Lys Asp Pro Tyr Lys Val Val Met Lys
45          130             135             140
        Gln Ser Lys Leu Pro Met Ser Leu Leu His Asp Arg Ile Arg Pro His
        145             150             155             160
        Asn Leu Lys Val His Ile Leu Asp Thr Glu Ser Phe Glu Thr Thr Phe
                    165             170             175
50      Gly Pro Lys Ser Arg Xaa Asn Asp Gln Thr Tyr Leu Gln Val Ile Cys
                    180             185             190
        Ser Leu Leu Ser Lys Met Leu Lys Cys Pro Leu Arg Ala Met Thr Arg
                    195             200             205
        Ala Arg
55          210


                <210> 1105
                <211> 368
                <212> PRT
60              <213> Homo sapiens


                <400> 1105
        Glu Ile Asp Gln Val Val Pro Ala Ala Gln Ser Ser Pro Ile Asn Cys
```

```
      1               5                   10                  15
     Glu Lys Arg Glu Asn Leu Leu Pro Phe Val Gly Leu Asn Asn Leu Gly
                  20                  25                  30
     Asn Thr Cys Tyr Leu Asn Ser Ile Leu Gln Val Leu Tyr Phe Cys Pro
                  35                  40                  45
     Gly Phe Lys Ser Gly Val Lys His Leu Phe Asn Ile Ile Ser Arg Lys
                  50                  55                  60
     Lys Glu Ala Leu Lys Asp Glu Ala Asn Gln Lys Asp Lys Gly Asn Cys
     65                  70                  75                  80
     Lys Glu Asp Ser Leu Ala Ser Tyr Glu Leu Ile Cys Ser Leu Gln Ser
                  85                  90                  95
     Leu Ile Ile Ser Val Glu Gln Leu Gln Ala Ser Phe Leu Leu Asn Pro
                  100                 105                 110
     Glu Lys Tyr Thr Asp Glu Leu Ala Thr Gln Pro Arg Arg Leu Leu Asn
                  115                 120                 125
     Thr Leu Arg Glu Leu Asn Pro Met Tyr Glu Gly Tyr Leu Gln His Asp
                  130                 135                 140
     Ala Gln Glu Val Leu Gln Cys Ile Leu Gly Asn Ile Gln Glu Thr Cys
     145                 150                 155                 160
     Gln Leu Leu Lys Lys Glu Glu Val Lys Asn Val Ala Glu Leu Pro Thr
                  165                 170                 175
     Lys Val Glu Glu Ile Pro His Pro Lys Glu Glu Met Asn Gly Ile Asn
                  180                 185                 190
     Ser Ile Glu Met Asp Ser Met Arg His Ser Glu Asp Phe Lys Glu Lys
                  195                 200                 205
     Leu Pro Lys Gly Asn Gly Lys Arg Lys Ser Asp Thr Glu Phe Gly Asn
                  210                 215                 220
     Met Lys Lys Lys Val Lys Leu Ser Lys Glu His Gln Ser Leu Glu Glu
     225                 230                 235                 240
     Asn Gln Arg Gln Thr Arg Ser Lys Arg Lys Ala Thr Ser Asp Thr Leu
                  245                 250                 255
     Glu Ser Pro Pro Lys Ile Ile Pro Lys Tyr Ile Ser Glu Asn Glu Ser
                  260                 265                 270
     Pro Arg Pro Ser Gln Lys Lys Ser Arg Val Lys Ile Asn Trp Leu Lys
                  275                 280                 285
     Ser Ala Thr Lys Gln Pro Ser Ile Leu Ser Lys Phe Cys Ser Leu Gly
                  290                 295                 300
     Lys Ile Thr Thr Asn Gln Gly Val Lys Gly Gln Ser Lys Glu Asn Glu
     305                 310                 315                 320
     Cys Asp Pro Glu Glu Asp Leu Gly Lys Cys Glu Ser Asp Asn Thr Thr
                  325                 330                 335
     Asn Gly Cys Gly Leu Glu Ser Pro Gly Asn Thr Val Thr Pro Val Asn
                  340                 345                 350
     Val Asn Glu Val Lys Pro Ile Asn Lys Gly Glu Glu Gln Ile Gly Phe
                  355                 360                 365
```

```
        <210> 1106
        <211> 218
        <212> PRT
        <213> Homo sapiens

        <400> 1106
     Glu Ile Asp Gln Val Val Pro Ala Ala Gln Ser Ser Pro Ile Asn Cys
     1               5                   10                  15
     Glu Lys Arg Glu Asn Leu Leu Pro Phe Val Gly Leu Asn Asn Leu Gly
                  20                  25                  30
     Asn Thr Cys Tyr Leu Asn Ser Ile Leu Gln Val Leu Tyr Phe Cys Pro
                  35                  40                  45
     Gly Phe Lys Ser Gly Val Lys His Leu Phe Asn Ile Ile Ser Arg Lys
                  50                  55                  60
     Lys Glu Ala Leu Lys Asp Glu Ala Asn Gln Lys Asp Lys Gly Asn Cys
     65                  70                  75                  80
     Lys Glu Asp Ser Leu Ala Ser Tyr Glu Leu Ile Cys Ser Leu Gln Ser
```

```
                         85                    90                    95
        Leu Ile Ile Ser Val Glu Gln Leu Gln Ala Ser Phe Leu Leu Asn Pro
                        100                   105                   110
        Glu Lys Tyr Thr Asp Glu Leu Ala Thr Gln Pro Arg Arg Leu Leu Asn
   5            115                   120                   125
        Thr Leu Arg Glu Leu Asn Pro Met Tyr Glu Gly Tyr Leu Gln His Asp
                130                   135                   140
        Ala Gln Glu Val Leu Gln Cys Ile Leu Gly Asn Ile Gln Glu Thr Cys
        145                   150                   155                   160
  10    Gln Leu Leu Lys Lys Glu Glu Val Lys Asn Val Ala Glu Phe Leu Leu
                        165                   170                   175
        Arg Xaa Lys Lys Ser Ser Ser Glu Glu Glu Met Asn Gly Leu Gln His
                        180                   185                   190
        Xaa Asp Gly Xaa Met Xaa Leu Leu Xaa Thr Phe Lys Arg Thr Pro Lys
  15            195                   200                   205
        Gly Met Gly Lys Glu Lys Val Pro Trp Ile
                210                   215
```

        <210> 1107
  20   <211> 121
        <212> PRT
        <213> Homo sapiens

        <400> 1107
  25   Leu Asn Tyr Pro Lys Arg Arg His Leu Asn Thr Trp Ile Tyr Thr Ser
        1   5   10   15
        Leu Leu Cys Leu Leu Phe Lys Ile Lys Cys Ser Tyr Leu Tyr Ser Pro
                        20   25   30
        Tyr Phe Gly Val Ile Ile Tyr Met Met Phe Ile Val Pro Val Val Phe
  30   35   40   45
        His Pro Arg Ser Arg Ile Ser Phe Ser Thr Phe Ser Phe Ile Arg Val
                50   55   60
        Met Lys Leu Asn Pro Trp Ala Met Ser Glu Ala Gln Ser Leu Glu Cys
        65   70   75   80
  35   Val Tyr Ser Gln Trp Cys Met Tyr Ile Leu Cys Leu Asp Ser Leu Arg
                        85   90   95
        Ser Val Ser Glu Asn Leu Asp Ser Ser Leu Leu His Lys Asn Phe Ile
                        100   105   110
        Cys Ile Tyr Glu Asp Asp Ser Val Pro
  40   115   120
```

        <210> 1108
        <211> 211
        <212> PRT
  45   <213> Homo sapiens

        <400> 1108
        Glu Thr Cys Gln Leu Leu Lys Lys Glu Glu Val Lys Asn Val Ala Glu
        1   5   10   15
  50   Leu Pro Thr Lys Val Glu Glu Ile Pro His Pro Lys Glu Glu Met Asn
                        20   25   30
        Gly Ile Asn Ser Ile Glu Met Asp Ser Met Arg His Ser Glu Asp Phe
                        35   40   45
        Lys Glu Lys Leu Pro Lys Gly Asn Gly Lys Arg Lys Ser Asp Thr Glu
  55   50   55   60
        Phe Gly Asn Met Lys Lys Lys Val Lys Leu Ser Lys Glu His Gln Ser
        65   70   75   80
        Leu Glu Glu Asn Gln Arg Gln Thr Arg Ser Lys Arg Lys Ala Thr Ser
                        85   90   95
  60   Asp Thr Leu Glu Ser Pro Pro Lys Ile Ile Pro Lys Tyr Ile Ser Glu
                        100   105   110
        Asn Glu Ser Pro Arg Pro Ser Gln Lys Lys Ser Arg Val Lys Ile Asn
                        115   120   125
```

```
Trp Leu Lys Ser Ala Thr Lys Gln Pro Ser Ile Leu Ser Lys Phe Cys
    130                 135                 140
Ser Leu Gly Lys Ile Thr Thr Asn Gln Gly Val Lys Gly Gln Ser Lys
145                 150                 155                 160
Glu Asn Glu Cys Asp Pro Glu Glu Asp Leu Gly Lys Cys Glu Ser Asp
                165                 170                 175
Asn Thr Thr Asn Gly Cys Gly Leu Glu Ser Pro Gly Asn Thr Val Thr
                180                 185                 190
Pro Val Asn Val Asn Glu Val Lys Pro Ile Asn Lys Gly Glu Glu Gln
        195                 200                 205
Ile Gly Phe
    210
```

```
<210> 1109
<211> 187
<212> PRT
<213> Homo sapiens
```

```
<400> 1109
Asn Val Ala Glu Leu Pro Thr Lys Val Glu Glu Ile Pro His Pro Lys
1               5                   10                  15
Glu Glu Met Asn Gly Ile Asn Ser Ile Glu Met Asp Ser Met Arg His
            20                  25                  30
Ser Glu Asp Phe Lys Glu Lys Leu Pro Lys Gly Asn Gly Lys Arg Lys
        35                  40                  45
Ser Asp Thr Glu Phe Gly Asn Met Lys Lys Lys Val Lys Leu Ser Lys
    50                  55                  60
Glu His Gln Ser Leu Glu Glu Asn Gln Arg Gln Thr Arg Ser Lys Arg
65                  70                  75                  80
Lys Ala Thr Ser Asp Thr Leu Glu Ser Pro Pro Lys Ile Ile Pro Lys
                85                  90                  95
Tyr Ile Ser Glu Asn Glu Ser Pro Arg Pro Ser Gln Lys Lys Ser Arg
            100                 105                 110
Val Lys Ile Asn Trp Leu Lys Ser Ala Thr Lys Gln Pro Ser Ile Leu
    115                 120                 125
Ser Lys Phe Cys Ser Leu Gly Lys Ile Thr Thr Asn Gln Gly Val Lys
    130                 135                 140
Gly Gln Ser Lys Glu Asn Glu Cys Asp Pro Glu Glu Asp Leu Gly Lys
145                 150                 155                 160
Cys Glu Ser Asp Asn Thr Thr Asn Gly Cys Gly Leu Glu Ser Pro Gly
                165                 170                 175
Asn Thr Val Thr Pro Val Asn Val Asn Glu Ser
                180                 185
```

```
<210> 1110
<211> 314
<212> PRT
<213> Homo sapiens
```

```
<400> 1110
Ile Pro Thr Glu Val Ala Ile Glu Ser Thr Pro Met Ile Leu Glu Ser
1               5                   10                  15
Ser Ile Met Ser Ser His Val Met Lys Gly Ile Asn Leu Ser Ser Gly
            20                  25                  30
Asp Gln Asn Leu Ala Pro Glu Ile Gly Ile Gln Glu Ile Ala Leu His
        35                  40                  45
Ser Gly Glu Glu Pro His Ala Glu Glu His Leu Lys Gly Asp Phe Tyr
    50                  55                  60
Glu Ser Glu His Gly Ile Asn Ile Asp Leu Asn Ile Asn Asn His Leu
65                  70                  75                  80
Ile Ala Lys Glu Met Glu His Asn Thr Val Cys Ala Ala Gly Thr Ser
                85                  90                  95
Pro Val Gly Glu Ile Gly Glu Glu Lys Ile Leu Pro Thr Ser Glu Thr
```

```
                  100                        105                        110
    Lys Gln Cys Thr Val Leu Asp Thr Tyr Pro Gly Val Ser Glu Ala Asp
              115                        120                        125
    Ala Gly Glu Thr Leu Ser Ser Thr Gly Pro Phe Ala Leu Glu Pro Asp
              130                        135                        140
    Ala Thr Gly Thr Ser Lys Gly Ile Glu Phe Thr Thr Ala Ser Thr Leu
    145                        150                        155                        160
    Ser Leu Val Asn Lys Tyr Asp Val Asp Leu Ser Leu Thr Thr Gln Asp
                          165                        170                        175
    Thr Glu His Asp Met Val Ile Ser Thr Ser Pro Ser Gly Gly Ser Glu
                      180                        185                        190
    Ala Asp Ile Glu Gly Pro Leu Pro Ala Lys Asp Ile His Leu Asp Leu
              195                        200                        205
    Pro Ser Asn Asn Asn Leu Val Ser Lys Asp Thr Glu Glu Pro Leu Pro
        210                        215                        220
    Val Lys Glu Ser Asp Gln Thr Leu Ala Ala Leu Leu Ser Pro Lys Glu
    225                        230                        235                        240
    Ser Ser Gly Gly Glu Lys Glu Val Pro Pro Pro Lys Glu Thr Leu
                          245                        250                        255
    Pro Asp Ser Gly Phe Ser Ala Asn Ile Glu Asp Ile Asn Glu Ala Asp
                      260                        265                        270
    Leu Val Arg Pro Leu Leu Pro Lys Asp Met Glu Arg Leu Thr Ser Leu
                  275                        280                        285
    Lys Ser Trp His Leu Lys Asp Leu Tyr Leu Gln Val Met Phe Gly Pro
        290                        295                        300
    Trp Thr Arg Ser Ala Gly Gln Pro Xaa Leu
    305                        310
```

```
            <210> 1111
            <211> 218
            <212> PRT
            <213> Homo sapiens


            <400> 1111
    Pro Val Gly Glu Ile Gly Glu Glu Lys Ile Leu Pro Thr Ser Glu Thr
    1                       5                          10                         15
    Lys Gln Cys Thr Val Leu Asp Thr Tyr Pro Gly Val Ser Glu Ala Asp
                  20                         25                         30
    Ala Gly Glu Thr Leu Ser Ser Thr Gly Pro Phe Ala Leu Glu Pro Asp
              35                         40                         45
    Ala Thr Gly Thr Ser Lys Gly Ile Glu Phe Thr Thr Ala Ser Thr Leu
        50                         55                         60
    Ser Leu Val Asn Lys Tyr Asp Val Asp Leu Ser Leu Thr Thr Gln Asp
    65                         70                         75                         80
    Thr Glu His Asp Met Val Ile Ser Thr Ser Pro Ser Gly Gly Ser Glu
                      85                         90                         95
    Ala Asp Ile Glu Gly Pro Leu Pro Ala Lys Asp Ile His Leu Asp Leu
                  100                        105                        110
    Pro Ser Asn Asn Asn Leu Val Ser Lys Asp Thr Glu Glu Pro Leu Pro
              115                        120                        125
    Val Lys Glu Ser Asp Gln Thr Leu Ala Ala Leu Leu Ser Pro Lys Glu
              130                        135                        140
    Ser Ser Gly Gly Glu Lys Glu Val Pro Pro Pro Lys Glu Thr Leu
    145                        150                        155                        160
    Pro Asp Ser Gly Phe Ser Ala Asn Ile Glu Asp Ile Asn Glu Ala Asp
                          165                        170                        175
    Leu Val Arg Pro Leu Leu Pro Lys Asp Met Glu Arg Leu Thr Ser Leu
                      180                        185                        190
    Lys Ser Trp His Leu Lys Asp Leu Tyr Leu Gln Val Met Phe Gly Pro
                  195                        200                        205
    Trp Thr Arg Ser Ala Gly Gln Pro Xaa Leu
        210                        215
```

```
        <210> 1112
        <211> 163
        <212> PRT
        <213> Homo sapiens


        <400> 1112
Ile Pro Thr Glu Val Ala Ile Glu Ser Thr Pro Met Ile Leu Glu Ser
1               5                   10                  15
Ser Ile Met Ser Ser His Val Met Lys Gly Ile Asn Leu Ser Ser Gly
            20                  25                  30
Asp Gln Asn Leu Ala Pro Glu Ile Gly Ile Gln Glu Ile Ala Leu His
        35                  40                  45
Ser Gly Glu Glu Pro His Ala Glu Glu His Leu Lys Gly Asp Phe Tyr
    50                  55                  60
Glu Ser Glu His Gly Ile Asn Ile Asp Leu Asn Ile Asn Asn His Leu
65                  70                  75                  80
Ile Ala Lys Glu Met Glu His Asn Thr Val Cys Ala Ala Gly Thr Ser
                85                  90                  95
Pro Val Gly Glu Ile Gly Glu Glu Lys Ile Leu Pro Thr Ser Glu Thr
            100                 105                 110
Lys Gln Arg Thr Val Leu Asp Thr Tyr Pro Gly Val Ser Glu Ala Asp
        115                 120                 125
Ala Gly Glu Thr Leu Ser Ser Thr Gly Pro Phe Ala Leu Glu Pro Asp
        130                 135                 140
Ala Thr Gly Thr Ser Lys Gly Ile Glu Phe Thr Thr Ala Ser Thr Leu
145                 150                 155                 160
Ser Leu Ser



        <210> 1113
        <211> 332
        <212> PRT
        <213> Homo sapiens


        <400> 1113
Ser Gly Cys Gly Ala Pro Ala Ala Gly Ala Gly Pro Arg Gly Ala Glu
1               5                   10                  15
Leu Gly Ser Gly Ala Gln Ala Val Pro Arg Gly Ala Met Lys Gly Lys
            20                  25                  30
Glu Glu Lys Glu Gly Gly Ala Arg Leu Gly Ala Gly Gly Gly Ser Pro
        35                  40                  45
Glu Lys Ser Pro Ser Ala Gln Glu Leu Lys Glu Gln Gly Asn Arg Leu
    50                  55                  60
Phe Val Gly Arg Lys Tyr Pro Glu Ala Ala Ala Cys Tyr Gly Arg Ala
65                  70                  75                  80
Ile Thr Arg Asn Pro Leu Val Ala Val Tyr Tyr Thr Asn Arg Ala Leu
                85                  90                  95
Cys Tyr Leu Lys Met Gln Gln His Glu Gln Ala Leu Ala Asp Cys Arg
            100                 105                 110
Arg Ala Leu Glu Leu Asp Gly Gln Ser Val Lys Ala His Phe Phe Leu
        115                 120                 125
Gly Gln Cys Gln Leu Glu Met Glu Ser Tyr Asp Glu Ala Ile Ala Asn
        130                 135                 140
Leu Gln Arg Ala Tyr Ser Leu Ala Lys Glu Gln Arg Leu Asn Phe Gly
145                 150                 155                 160
Asp Asp Ile Pro Ser Ala Leu Arg Ile Ala Lys Xaa Lys Arg Trp Asn
                165                 170                 175
Ser Ile Glu Glu Arg Arg Ile His Gln Glu Ser Glu Leu Xaa Phe Tyr
            180                 185                 190
Xaa Phe Xaa Leu Ile Ala Xaa Asp Arg Glu Arg Lys Xaa Lys Xaa Cys
        195                 200                 205
Gln Gly Asn His Glu Gly Tyr Glu Asp Asp Lys Pro Arg Pro Gly Pro
    210                 215                 220
```

```
     Ser Arg Leu Ala Leu Arg Pro Ser Thr Thr Ser Thr Trp Arg Thr Trp
     225                 230             235             Thr         240
     Thr Ser Phe Phe Phe Gln Val Asp Glu Arg Gly Arg Ser Glu Thr Ser
                     245             250             255
 5   Pro Thr Tyr Leu Cys Gly Lys Ile Ser Phe Glu Pro Met Arg Glu Pro
                     260             265             270
     Cys Ile Thr Pro Ser Gly Ile Thr Tyr Asp Arg Lys Asp Ile Glu Glu
                     275             280             285
     His Leu Gln Arg Val Gly His Phe Asp Pro Val Thr Arg Ser Pro Leu
10           290             295             300
     Thr Gln Glu Gln Leu Ile Pro Asn Leu Ala Met Lys Glu Val Ile Asp
     305                 310             315                 320
     Ala Phe Ile Ser Glu Asn Gly Trp Val Glu Asp Tyr
                     325             330
15
             <210> 1114
             <211> 259
             <212> PRT
             <213> Homo sapiens
20
             <400> 1114
     Val Thr Gln Glu Phe Thr Gln Tyr Trp Ala Gln Arg Glu Ala Asp Phe
     1               5               10               15
     Lys Glu Thr Leu Leu Gln Glu Arg Glu Ile Leu Glu Glu Asn Ala Glu
25                   20              25              30
     Arg Arg Leu Ala Ile Phe Lys Asp Leu Val Gly Lys Cys Asp Thr Arg
                     35              40              45
     Glu Glu Ala Ala Lys Asp Ile Cys Ala Thr Lys Val Glu Thr Glu Glu
                     50              55              60
30   Ala Thr Ala Cys Leu Glu Leu Lys Phe Asn Gln Ile Lys Ala Glu Leu
     65              70              75              80
     Ala Lys Thr Lys Gly Glu Leu Ile Lys Thr Lys Glu Glu Leu Lys Lys
                     85              90              95
     Arg Glu Asn Glu Ser Asp Ser Leu Ile Gln Glu Leu Glu Thr Ser Asn
35                   100             105             110
     Lys Lys Ile Ile Thr Gln Asn Gln Arg Ile Lys Glu Leu Ile Asn Ile
                     115             120             125
     Ile Asp Gln Lys Glu Asp Thr Ile Asn Glu Phe Gln Asn Leu Lys Ser
                     130             135             140
40   His Met Glu Asn Thr Phe Lys Cys Asn Asp Lys Ala Asp Thr Ser Ser
     145             150             155             160
     Leu Ile Ile Asn Asn Lys Leu Ile Cys Asn Glu Thr Val Glu Val Pro
                     165             170             175
     Lys Asp Ser Lys Ser Lys Ile Cys Ser Glu Arg Lys Arg Val Asn Glu
45                   180             185             190
     Asn Glu Leu Gln Gln Asp Glu Pro Pro Ala Lys Lys Gly Ser Ile His
                     195             200             205
     Cys Ser Ser Ala Ser Leu Lys Thr Lys Arg Lys Val Glu Glu Val Arg
     210             215             220
50   Pro Glu His Cys Arg Lys Leu Lys Thr Xaa Arg Val Leu Gln Gly Lys
     225                 230             235                 240
     Ile Met Lys Gly Leu Glu Ser Ile Phe Ser Ser Leu Phe Glu Asn Asp
                     245             250             255
     Leu Lys Lys
55
             <210> 1115
             <211> 204
             <212> PRT
60           <213> Homo sapiens

             <400> 1115
     Arg Ile Ser Asn Ser Arg Xaa Pro Ile Gly Lys Ile Leu Ser Xaa Leu
                     4S1
```

```
             1                 5                      10                    15
       Val Leu Lys Pro Ile Trp Glu Glu Cys Lys Glu Ile Val Lys Ala Ser
                     20                      25                    30
       Ser Lys Lys Ser His Gln Ile Glu Glu Leu Glu Gln Gln Ile Glu Lys
 5                 35                      40                    45
       Leu Gln Ala Glu Val Lys Gly Tyr Lys Asp Glu Asn Asn Arg Leu Lys
                 50                      55                    60
       Glu Lys Glu His Lys Asn Gln Asp Asp Leu Leu Lys Glu Lys Glu Thr
       65                      70                    75                    80
10     Leu Ile Gln Gln Leu Lys Glu Glu Leu Gln Glu Lys Asn Val Thr Leu
                         85                      90                    95
       Asp Val Gln Ile Gln His Val Val Glu Gly Lys Arg Ala Leu Ser Glu
                     100                    105                    110
       Leu Thr Gln Gly Val Thr Cys Tyr Lys Ala Lys Ile Lys Glu Leu Glu
15                 115                    120                    125
       Thr Ile Leu Glu Thr Gln Lys Val Glu Cys Ser His Ser Ala Lys Leu
                 130                    135                    140
       Glu Gln Asp Ile Leu Glu Lys Glu Ser Ile Ile Leu Lys Leu Glu Arg
       145                    150                    155                    160
20     Asn Leu Lys Glu Phe Gln Glu His Leu Gln Asp Ser Val Lys Asn Thr
                     165                    170                    175
       Lys Asp Leu Asn Val Lys Glu Leu Lys Leu Lys Glu Glu Ile Thr Gln
                     180                    185                    190
       Leu Thr Asn Asn Leu Gln Asp Met Lys His Leu Leu
25                 195                    200


             <210> 1116
             <211> 92
             <212> PRT
30           <213> Homo sapiens


             <400> 1116
       Val Gln Leu Ser Gln Glu Lys Arg Tyr Thr Tyr Asp Lys Leu Gly Lys
       1                 5                      10                    15
35     Xaa Gln Arg Arg Asn Glu Glu Leu Glu Glu Gln Cys Val Gln His Gly
                     20                      25                    30
       Arg Val His Glu Thr Met Lys Gln Arg Leu Arg Gln Leu Asp Lys His
                 35                      40                    45
       Ser Gln Ala Thr Ala Gln Gln Leu Val Gln Leu Leu Ser Lys Gln Asn
40                 50                      55                    60
       Gln Leu Leu Leu Glu Arg Gln Ser Leu Ser Glu Glu Val Asp Arg Leu
       65                      70                    75                    80
       Arg Thr Gln Leu Pro Ser Met Pro Gln Ser Asp Cys
                     85                      90
45
             <210> 1117
             <211> 224
             <212> PRT
             <213> Homo sapiens
50
             <400> 1117
       Gly Asn Ser Ser Leu Asn Ser Thr Ser Asn Thr Lys Val Ser Ala Val
       1                 5                      10                    15
       Pro Thr Asn Met Ala Ala Lys Lys Thr Ser Thr Pro Lys Ile Asn Phe
55                 20                      25                    30
       Val Gly Gly Asn Lys Leu Gln Ser Thr Gly Asn Lys Ala Glu Asp Thr
                 35                      40                    45
       Lys Gly Thr Glu Cys Val Lys Ser Thr Pro Val Thr Ser Ala Val Gln
                 50                      55                    60
60     Ile Pro Glu Val Lys Gln Asp Thr Val Ser Glu Pro Val Thr Pro Ala
       65                      70                    75                    80
       Ser Leu Ala Ala Leu Gln Ser Asp Val Gln Pro Val Gly His Asp Tyr
                     85                      90                    95
```

```
      Val Glu Glu Val Arg Asn Asp Glu Gly Lys Val Ile Arg Phe His Cys
                  100                 105                 110
      Lys Leu Cys Glu Cys Ser Phe Asn Asp Pro Asn Ala Lys Glu Met His
                  115                 120                 125
  5   Leu Lys Gly Arg Arg His Arg Leu Gln Tyr Lys Lys Lys Val Asn Pro
                  130                 135                 140
      Asp Leu Gln Val Glu Val Lys Pro Ser Ile Arg Xaa Arg Lys Ile Gln
      145                 150                 155                 160
      Glu Glu Lys Met Arg Lys Gln Met Xaa Lys Glu Glu Tyr Trp Arg Xaa
 10                   165                 170                 175
      Xaa Lys Glu Lys Gly Ala Leu Glu Asn Gly Asn Glu Thr Xaa Xaa Lys
                  180                 185                 190
      Arg His Val Leu Glu Glu Asn Gly Xaa Arg Thr Thr Leu Phe Gly Met
                  195                 200                 205
 15   Ile Ala Xaa Asn Ala Xaa Xaa Arg Xaa Ser His Xaa Pro Xaa Gly His
          210                 215                 220


          <210> 1118
          <211> 161
 20       <212> PRT
          <213> Homo sapiens


          <400> 1118
      Glu Arg Cys Gly Ala Ala Arg Phe Ala Cys Lys Cys Ile Thr Lys Arg
 25   1               5                   10                  15
      Gln Pro Arg Met Lys Lys Ala Ser Arg Ser Val Gly Ser Val Pro Lys
                  20                  25                  30
      Val Ser Ala Ile Ser Lys Thr Gln Thr Ala Glu Lys Ile Lys Pro Glu
                  35                  40                  45
 30   Asn Ser Ser Ser Ala Ser Thr Gly Gly Lys Leu Val Lys Pro Gly Thr
                  50                  55                  60
      Ala Ala Ser Leu Ser Lys Thr Lys Ser Ser Asp Asp Leu Leu Ala Gly
      65                  70                  75                  80
      Met Ala Gly Gly Val Thr Val Thr Asn Gly Val Lys Gly Lys Lys Ser
 35                   85                  90                  95
      Thr Cys Pro Ser Ala Ala Pro Ser Ala Ser Ala Pro Ala Met Thr Thr
                  100                 105                 110
      Val Glu Asn Lys Ser Lys Ile Ser Thr Gly Thr Ala Ser Ser Thr Lys
                  115                 120                 125
 40   Arg Ser Thr Ser Thr Gly Gln Gly Ala Asn Asp Met Ala Leu Ala Lys
          130                 135                 140
      Arg Ser Arg Ser Arg Thr Ala Thr Glu Cys Asp Val Arg Met Ser Lys
      145                 150                 155                 160
      Ser
 45


          <210> 1119
          <211> 185
          <212> PRT
 50       <213> Homo sapiens


          <400> 1119
      Leu Ile Glu Ala Glu Gly Ile Glu Asp Ile Glu Lys Glu Asp Ile Glu
      1               5                   10                  15
 55   Ser Gln Glu Ile Glu Ala Gln Glu Gly Glu Asp Asp Thr Phe Leu Thr
                  20                  25                  30
      Ala Gln Asp Gly Glu Glu Glu Glu Asn Glu Lys Asp Ile Ala Gly Ser
                  35                  40                  45
      Gly Asp Gly Thr Gln Glu Val Ser Lys Pro Leu Pro Ser Glu Gly Ser
 60       50                  55                  60
      Leu Ala Glu Ala Asp His Thr Ala His Glu Glu Met Glu Ala His Thr
      65                  70                  75                  80
      Thr Val Lys Glu Ala Glu Asp Asp Asn Ile Ser Val Thr Ile Gln Ala
```

433

```
                        85                      90                      95
        Glu Asp Ala Ile Thr Leu Asp Phe Asp Gly Asp Asp Leu Leu Glu Thr
                        100                     105                     110
        Gly Lys Asn Val Lys Ile Thr Asp Ser Glu Ala Ser Lys Pro Lys Asp
     5                  115                     120                     125
        Gly Gln Asp Ala Ile Ala Gln Ser Pro Glu Lys Glu Ser Lys Asp Tyr
                        130                     135                     140
        Glu Met Asn Ala Asn His Lys Asp Gly Lys Lys Glu Asp Cys Val Lys
                145                     150                     155                     160
    10  Gly Asp Pro Val Glu Lys Glu Ala Arg Glu Ser Ser Xaa Lys Ala Glu
                        165                     170                     175
        Ser Gly Asp Gln Arg Lys Xaa Tyr Phe
                        180                     185


    15          <210> 1120
                <211> 236
                <212> PRT
                <213> Homo sapiens


    20          <400> 1120
        Lys Gln Val Ser Gln Lys Met Gly Arg Xaa Ala Ile Xaa Xaa Ser Pro
        1                   5                   10                      15
        Xaa Lys Glu Ser Lys Asp Tyr Glu Met Asn Ala Xaa His Lys Asp Gly
          .                 20                  25                      30
    25  Lys Lys Glu Asp Cys Val Lys Gly Asp Pro Val Glu Lys Glu Ala Arg
                        35                  40                      45
        Glu Ser Ser Lys Lys Ala Glu Ser Gly Asp Lys Glu Lys Asp Thr Leu
                        50                  55                      60
        Lys Lys Gly Pro Ser Ser Thr Gly Ala Xaa Gly Gln Ala Lys Ser Ser
    30  65                      70                      75                      80
        Ser Lys Glu Ser Lys Asp Ser Lys Thr Ser Ser Lys Asp Xaa Lys Gly
                        85                      90                      95
        Ser Xaa Ser Ser Thr Ser Gly Ser Ser Xaa Ser Ser Thr Lys Asn Xaa
                        100                     105                     110
    35  Trp Val Ser Gly Leu Ser Ser Asn Thr Lys Ala Ala Asp Leu Lys Asn
                        115                     120                     125
        Leu Phe Gly Lys Tyr Gly Lys Val Leu Ser Ala Lys Val Val Thr Asn
                        130                     135                     140
        Ala Arg Ser Pro Gly Ala Lys Cys Tyr Gly Ile Val Thr Met Ser Ser
    40  145                     150                     155                     160
        Ser Thr Glu Val Ser Arg Cys Ile Ala His Xaa His Arg Thr Glu Leu
                        165                     170                     175
        His Gly Gln Leu Ile Ser Val Glu Lys Val Lys Gly Asp Pro Ser Lys
                        180                     185                     190
    45  Lys Glu Met Lys Lys Glu Asn Asp Glu Lys Ser Ser Ser Arg Ser Ser

        Gly Asp Lys Lys Asn Thr Ser Asp Arg Ser Ser Lys Thr Gln Ala Ser
                        210                     215                     220
        Val Lys Lys Glu Glu Lys Arg Ser Ser Glu Lys Xaa
    50  225                     230                     235


                <210> 1121
                <211> 205
                <212> PRT
    55          <213> Homo sapiens


                <400> 1121
        Ser Gly Cys Gly Ala Pro Ala Ala Gly Ala Gly Pro Arg Gly Ala Glu
        1                   5                   10                      15
    60  Leu Gly Ser Gly Ala Gln Ala Val Pro Arg Gly Ala Met Lys Gly Lys
                        20                  25                      30
        Glu Glu Lys Glu Gly Gly Ala Arg Leu Gly Ala Gly Gly Gly Ser Pro
                    35                  40                      45
```

```
Glu Lys Ser Pro Ser Ala Gln Glu Leu Lys Glu Gln Gly Asn Arg Leu
    50                  55                  60
Phe Val Gly Arg Lys Tyr Pro Glu Ala Ala Ala Cys Tyr Gly Arg Ala
65                  70      ·           75                  80
Ile Thr Arg Asn Pro Leu Val Ala Val Tyr Tyr Thr Asn Arg Ala Leu
                85                  90                  95
Cys Tyr Leu Lys Met Gln Gln His Glu Gln Ala Leu Ala Asp Cys Arg
            100                 105                 110
Arg Ala Leu Glu Leu Asp Gly Gln Ser Val Lys Ala His Phe Phe Leu
        115                 120                 125
Gly Gln Cys Gln Leu Glu Met Glu Ser Tyr Asp Glu Ala Ile Ala Asn
    130                 135                 140
Leu Gln Arg Ala Tyr Ser Leu Ala Lys Glu Gln Arg Leu Asn Phe Gly
145                 150                 155                 160
Asp Asp Ile Pro Ser Ala Leu Arg Ile Ala Lys Xaa Lys Arg Trp Asn
                165                 170                 175
Ser Ile Glu Glu Arg Arg Ile His Gln Glu Ser Glu Leu Xaa Phe Tyr
                180                 185                 190
Xaa Phe Xaa Leu Ile Ala Xaa Asp Arg Xaa Lys Glu Thr
        195                 200                 205
```

```
<210> 1122
<211> 136
<212> PRT
<213> Homo sapiens


<400> 1122
Phe Pro Arg Lys Arg Glu Arg Lys Xaa Lys Xaa Cys Gln Gly Asn His
1               5                   10                  15
Glu Gly Tyr Glu Asp Asp Lys Pro Arg Pro Gly Pro Ser Arg Leu Ala
            20                  25                  30
Leu Arg Pro Ser Thr Thr Ser Thr Trp Arg Thr Trp Thr Ser Phe Phe
        35                  40                  45
Phe Gln Val Asp Glu Arg Gly Arg Ser Glu Thr Ser Pro Thr Tyr Leu
    50                  55                  60
Cys Gly Lys Ile Ser Phe Glu Pro Met Arg Glu Pro Cys Ile Thr Pro
65      .           70                  75                  80
Ser Gly Ile Thr Tyr Asp Arg Lys Asp Ile Glu Glu His Leu Gln Arg
                85                  90                  95      .
Val Gly His Phe Asp Pro Val Thr Arg Ser Pro Leu Thr Gln Glu Gln
            100                 105                 110
Leu Ile Pro Asn Leu Ala Met Lys Glu Val Ile Asp Ala Phe Ile Ser
        115                 120                 125
Glu Asn Gly Trp Val Glu Asp Tyr
    130                 135
```

```
<210> 1123
<211> 206
<212> PRT
<213> Homo sapiens


<400> 1123
Asn Leu Lys Gly Ile Leu Glu Glu Ser Pro Ser Glu Ala Glu Asp Phe
1               5                   10                  15
Ile Ser Gly Ile Thr Gln Thr Met Val Glu Ala Val Ala Glu Val Glu
            20                  25                  30
Lys Asn Glu Thr Val Ser Glu Ile Leu Pro Ser Thr Cys Ile Val Thr
        35                  40                  45
Leu Val Pro Gly Ile Pro Thr Gly Asp Glu Lys Thr Val Asp Lys Lys
    50                  55                  60
Asn Ile Ser Glu Lys Lys Gly Asn Met Asp Glu Lys Glu Glu Lys Glu
65                  70                  75                  80
Phe Asn Thr Lys Glu Thr Arg Met Asp Leu Gln Ile Gly Thr Glu Lys
```
                                435

```
                            85                      90                      95
         Ala Glu Lys Asn Glu Gly Arg Met Asp Ala Glu Lys Val Glu Lys Met
                            100                     105                     110
   5     Ala Ala Met Lys Glu Lys Pro Ala Glu Asn Thr Leu Phe Lys Ala Tyr
                            115                     120                     125
         Pro Asn Lys Gly Val Gly Gln Ala Asn Lys Pro Asp Glu Thr Ser Lys
                            130                     135                     140
         Thr Ser Ile Leu Ala Val Ser Asp Val Ser Ser Ser Lys Pro Ser Ile
         145                     150                     155                     160
   10    Lys Ala Val Ile Val Ser Ser Pro Lys Ala Lys Ala Thr Val Ser Lys
                            165                     170                     175
         Thr Glu Asn Gln Lys Ser Phe Pro Lys Ser Val Pro Arg Asp Gln Ile
                            180                     185                     190
         Asn Ala Glu Lys Lys Leu Ser Ala Gln Xaa Ile Trp Ser Ala
   15                       195                     200                     205


              <210> 1124
              <211> 94
              <212> PRT
   20         <213> Homo sapiens


              <400> 1124
         Gln Leu Asn Ser Thr Gln Arg Glu Leu Glu Leu Glu Asn Ser Ala Ile
         1                   5                   10                      15
   25    Arg Lys Ser Cys Cys Ala Glu Pro Ala Lys Gly Glu Glu Ala Phe Gln
                            20                      25                      30
         Met Ser Glu Val Asp Glu Glu Ser Gly Leu Lys Asp Ser Glu Pro Glu
                            35                      40                      45
         Arg Lys Arg Lys Lys Thr Glu Asp Ser Ser Ser Gly Lys Ser Val Ala
   30         50                      55                      60
         Ser Asp Val Pro Glu Glu Leu Asp Phe Leu Asp Leu Arg Leu Asp Ser
         65                      70                      75                      80
         Ser Val Gln Phe Val Pro Ser Ser Thr Gln Val Lys Lys Gln
                            85                      90
   35         .


              <210> 1125
              <211> 237
              <212> PRT
   40         <213> Homo sapiens


              <400> 1125
         Arg Pro Gly Lys Arg Arg Cys Gly Val Gly Cys Phe Pro Glu Ala Gly
         1                   5                   10                      15
         Leu Asn Gly Ser Arg Leu Ser His Arg Val Ser Ser Pro Pro Ser Pro
   45                       20                      25                      30
         Asn Gln Glu Ile Ala Arg Glu Arg Cys Gly Ala Ala Arg Phe Ala Cys
                            35                      40                      45
         Lys Cys Ile Thr Lys Arg Gln Pro Arg Met Lys Lys Ala Ser Arg Ser
              50                      55                      60
   50    Val Gly Ser Val Pro Lys Val Ser Ala Ile Ser Lys Thr Gln Thr Ala
         65                      70                      75                      80
         Glu Lys Ile Lys Pro Glu Asn Ser Ser Ser Ala Ser Thr Gly Gly Lys
                            85                      90                      95
         Leu Val Lys Pro Gly Thr Ala Ala Ser Leu Ser Lys Thr Lys Ser Ser
   55                       100                     105                     110
         Asp Asp Leu Leu Ala Gly Met Ala Gly Gly Val Thr Val Thr Asn Gly
                            115                     120                     125
         Val Lys Gly Lys Lys Ser Thr Cys Pro Ser Ala Ala Pro Ser Ala Ser
                            130                     135                     140
   60    Ala Pro Ala Met Thr Thr Val Glu Asn Lys Ser Lys Ile Ser Thr Gly
         145                     150                     155                     160
         Thr Xaa Ser Ser Thr Lys Arg Ser Thr Xaa Thr Gly Asn Lys Glu Ser
                            165                     170                     175
```

```
     Ser Ser Thr Arg Glu Arg Leu Arg Glu Arg Thr Arg Leu Asn Gln Ser
             180                     185                 190
     Lys Lys Leu Pro Xaa Ala Gly Xaa Gly Ala Asn Asp Met Ala Phe Gly
             195                     200                 205
  5  Gln Thr Xaa Xaa Gln Leu Asn Xaa Phe Gln Asn Val Thr Phe Arg Xaa
             210                     215                 220
     Xaa Gln Xaa Leu Ser Gln Thr Ile Xaa Asn Pro Val Xaa
     225                 230                     235


10           <210> 1126
             <211> 195
             <212> PRT
             <213> Homo sapiens


15           <400> 1126
     Leu Asn Glu Ile Tyr Thr Lys Thr Asp Ser Lys Ser Ile Met Arg Met
     1               5                   10                  15
     Lys Ser Gly Gln Met Phe Ala Lys Glu Asp Leu Lys Arg Lys Lys Leu
             20                      25                  30
20   Val Arg Asp Gly Ser Val Phe Leu Lys Asn Ala Ala Gly Arg Leu Lys
             35                      40                  45
     Glu Val Gln Ala Val Leu Leu Thr Asp Ile Leu Val Phe Leu Gln Glu
             50                      55                  60
     Lys Asp Gln Lys Tyr Ile Phe Ala Ser Leu Asp Gln Lys Ser Thr Val
25   65                  70                  75                  80
     Ile Ser Leu Lys Lys Leu Ile Val Arg Glu Val Ala His Glu Glu Lys
                 85                  90                  95
     Gly Leu Phe Leu Ile Ser Met Gly Met Thr Asp Pro Glu Met Val Glu
                 100                     105                 110
30   Val His Ala Ser Ser Lys Glu Glu Arg Asn Ser Trp Ile Gln Ile Ile
             115                     120                 125
     Gln Asp Thr Ile Asn Thr Leu Asn Arg Asp Glu Asp Glu Gly Ile Pro
             130                     135                 140
     Ser Glu Asn Glu Glu Glu Lys Lys Met Leu Asp Thr Arg Pro Arg Glu
35   145                 150                 155                 160
     Leu Lys Glu His Phe Pro Glu Gly Gln Lys Ile Ser Leu Val Glu Arg
                 165                     170                 175
     Arg Asn Asp Phe Pro Xaa Trp Leu Met His Pro Leu Ser Arg Asp Trp
                 180                     185                 190
40   Ser His Pro
                 195


             <210> 1127
             <211> 160
45           <212> PRT
             <213> Homo sapiens


             <400> 1127
     Glu Glu Gly Arg Ala Leu His Asp Gly Ile Ala Ile Ala Tyr Ala Thr
50   1               5                   10                  15
     Leu Glu Tyr Phe Ile Arg Asp Val Lys Ser Leu Thr Leu Phe Val Thr
             20                      25                  30
     His Tyr Pro Pro Val Cys Glu Leu Glu Lys Asn Tyr Ser His Gln Val
             35                      40                  45
55   Gly Asn Tyr His Met Gly Phe Leu Val Ser Glu Asp Glu Ser Lys Leu
             50                      55                  60
     Asp Pro Gly Thr Ala Glu Gln Val Pro Asp Phe Val Thr Phe Leu Tyr
     65                  70                  75                  80
     Gln Ile Thr Arg Gly Ile Ala Ala Arg Ser Tyr Gly Leu Asn Val Ala
60   85                  90                  95
     Lys Leu Ala Asp Val Pro Gly Glu Ile Leu Lys Lys Ala Ala His Lys
                 100                     105                 110
     Ser Lys Glu Leu Glu Gly Leu Ile Asn Thr Lys Arg Lys Arg Leu Lys
```

```
              115                    120                    125
     Tyr Phe Ala Lys Leu Trp Thr Met His Asn Ala Gln Asp Leu Gln Lys
         130                    135                    140
     Trp Thr Glu Glu Phe Asn Met Glu Glu Thr Gln Thr Ser Leu Leu His
 5   145                    150                    155                    160


         <210> 1128
         <211> 82
         <212> PRT
10       <213> Homo sapiens


         <400> 1128
     Ile Pro Ser Leu Gln Glu Glu Ala Lys Lys Gln Ile Glu Asp Leu Asn
     1               5                    10                    15
15   Met Thr Leu Glu Lys Leu Arg Ser Asp Leu Asp Glu Lys Glu Thr Glu
                 20                    25                    30
     Arg Ser Asp Met Lys Glu Thr Ile Phe Glu Leu Glu Asp Glu Val Glu
             35                    40                    45
     Gln His Arg Ala Val Lys Leu His Asp Asn Leu Ile Ile Ser Asp Leu
20           50                    55                    60
     Glu Asn Thr Gly Lys Lys Leu Gln Xaa Pro Lys Xaa Asp Met Gly Lys
     65                    70                    75                    80
     Arg Asn


25
         <210> 1129
         <211> 414
         <212> PRT
         <213> Homo sapiens
30
         <400> 1129
     Ser Arg Thr Arg Thr Ser Asp Arg Leu Asn Arg Ile Ala Asn Gln Val
     1               5                    10                    15
     Ala Ile Gln Arg Lys Lys Gln Phe Val Glu Arg Ala His Ser Tyr Trp
35               20                    25                    30
     Leu Leu Lys Arg Leu Ser Arg Asn Gly Ala Pro Leu Leu Arg Arg Leu
             35                    40                    45
     Gln Ser Ser Leu Gln Ser Gln Arg Ser Ser Gln Gln Arg Glu Asn Asp
             50                    55                    60
40   Glu Glu Met Lys Ala Ala Lys Glu Lys Leu Lys Tyr Trp Gln Arg Leu
     65                    70                    75                    80
     Arg His Asp Leu Glu Arg Ala Arg Leu Leu Ile Glu Leu Leu Arg Lys
                 85                    90                    95
     Arg Glu Lys Leu Lys Arg Glu Gln Val Lys Val Glu Gln Val Ala Met
45               100                   105                   110
     Glu Leu Arg Leu Thr Pro Leu Thr Val Leu Leu Arg Ser Val Leu Asp
             115                   120                   125
     Gln Leu Gln Asp Lys Asp Pro Ala Arg Ile Phe Ala Gln Pro Val Ser
             130                   135                   140
50   Leu Lys Glu Val Pro Asp Tyr Leu Asp His Ile Lys His Pro Met Asp
     145                   150                   155                   160
     Phe Ala Thr Met Arg Lys Arg Leu Glu Ala Gln Gly Tyr Lys Asn Leu
                 165                   170                   175
     His Glu Phe Glu Glu Asp Phe Asp Leu Ile Ile Asp Asn Cys Met Lys
55               180                   185                   190
     Tyr Asn Ala Arg Asp Thr Val Phe Tyr Arg Ala Ala Val Arg Leu Arg
                 195                   200                   205
     Asp Gln Gly Gly Val Val Leu Arg Gln Ala Arg Arg Glu Val Asp Ser
             210                   215                   220
60   Ile Gly Leu Glu Glu Ala Ser Gly Met His Leu Pro Glu Arg Pro Ala
     225                   230                   235                   240
     Ala Ala Pro Arg Arg Pro Phe Ser Trp Glu Asp Val Asp Arg Leu Leu
                 245                   250                   255
```

```
            Asp Pro Ala Asn Arg Ala His Leu Gly Leu Glu Glu Gln Leu Arg Glu
                    260             265                 270
            Leu Leu Asp Met Leu Asp Leu Thr Cys Ala Met Lys Ser Ser Gly Ser
                    275             280                 285
     5      Arg Ser Lys Arg Ala Lys Leu Leu Lys Lys Glu Ile Ala Leu Leu Arg
                    290             295                 300
            Asn Lys Leu Ser Gln Gln His Ser Gln Pro Leu Pro Thr Gly Pro Gly
            305             310             315                 320
            Leu Glu Gly Phe Glu Glu Asp Gly Ala Ala Leu Gly Pro Gly Gly Gly
     10             325             330                 335
            Arg Arg Ser Pro Ser Glu Val Gly Asp Ser Ser Ala Ala Lys Glu Lys
                    340             345                 350
            Val Ala Glu His Met Arg Arg Leu Xaa Xaa Trp Arg Arg Ser Xaa Xaa
                    355             360                 365
     15     Glu Lys Arg Leu Asp Ala Gly Leu His Gln Xaa Leu Leu Gly Cys Xaa
            370             375                 380
            Glu Pro Thr Xaa Asn Pro Ala Gly Gly Leu Gly Gly Gly Arg Pro His
            385             390                 395                 400
            Pro Asp Asp Leu Gly Pro Ser Ser Ser Arg Phe Ser Phe Lys
     20             405             410
```

```
            <210> 1130
            <211> 178
            <212> PRT
     25     <213> Homo sapiens


            <400> 1130
            Ile Val Glu Arg Glu Ser Gly His Tyr Val Glu Met His Ala Arg Tyr
            1           5               10              15
     30     Ile Gly Thr Thr Val Phe Val Arg Gln Val Gly Arg Tyr Leu Thr Leu
                    20              25                  30
            Ala Ile Arg Met Pro Glu Asp Leu Ala Met Ser Tyr Glu Glu Ser Gln
                    35              40                  45
            Asp Leu Gln Leu Cys Val Asn Gly Cys Pro Leu Ser Glu Arg Ile Asp
     35     50              55                  60
            Asp Gly Gln Gly Gln Val Ser Ala Ile Leu Gly His Ser Leu Pro Arg
            65              70                  75              80
            Thr Ser Leu Val Gln Ala Trp Pro Gly Tyr Thr Leu Glu Thr Ala Asn
                    85              90                  95
     40     Thr Gln Cys His Glu Lys Met Pro Val Lys Asp Ile Tyr Phe Gln Ser
                    100             105                 110
            Cys Val Phe Asp Leu Leu Thr Thr Gly Asp Ala Asn Phe Thr Ala Ala
                    115             120                 125
            Ala His Ser Ala Leu Glu Asp Val Glu Ala Leu His Pro Arg Lys Glu
     45     130             135                 140
            Arg Trp His Ile Phe Pro Ser Ser Gly Asn Gly Thr Pro Arg Gly Gly
            145             150                 155                 160
            Ser Asp Leu Ser Val Ser Leu Gly Leu Thr Cys Leu Ile Leu Ile Val
                    165             170                 175
     50     Phe Leu
```

```
            <210> 1131
            <211> 118
     55     <212> PRT
            <213> Homo sapiens


            <400> 1131
            Ala Gly Arg Arg His Arg Thr Gly Asn Arg Cys Pro Ser Leu Ala Ser
     60     1           5               10              15
            Ser His Gly Ile Glu Cys Trp Gln Ser Pro Val Cys Ser Gln Ala Arg
                    20              25                  30
            Pro Ala Pro Arg Arg Cys Glu Ala Gly Cys Val Pro Gly Trp Gln Thr
```

                                      ₄₃₉

```
              35                    40                    45
      Pro Gly Pro Ala Arg His Arg Cys Val His Ser Gly Gly Ser Arg Ser
              50                    55                    60
      Arg Thr Ala Ala Gly Pro Gly Ser Pro Arg Arg Thr Trp Pro Gly Leu
 5    65                    70                    75                    80
      Gln Ala Tyr Gly Trp Gln Gly Ser Gly Ser Asp Pro Pro Ala Ala Gln
                      85                    90                    95
      Thr Leu Trp Ser Leu Tyr Ser Gly Arg Ala Ser Pro His Ser Gly His
                      100                   105                   110
10    Ser Pro Phe Pro Arg Tyr
                  115


          <210> 1132
          <211> 166
15        <212> PRT
          <213> Homo sapiens


          <400> 1132
      Thr Asp Arg Gln Ile Thr Ala Ser Thr Gly Ser Pro Ile Ala Thr Ala
20    1               5                     10                    15
      Gly Glu Asn Val Pro Ala Phe Leu Pro Trp Val Gln Gly Leu His Ile
                      20                    25                    30
      Leu Gln Gly Thr Val Gly Cys Gly Ser Lys Val Gly Ile Thr Ser Gly
                      35                    40                    45
25    Glu Gln Val Glu Asp Thr Gly Leu Glu Ile Asp Val Leu His Trp His
              50                    55                    60
      Leu Leu Met Ala Leu Ser Val Gly Ser Leu Gln Cys Val Ala Arg Pro
      65                    70                    75                    80
      Gly Leu His Gln Gly Gly Ala Arg Gln Ala Val Ser Gln Asp Gly Arg
30                    85                    90                    95
      His Leu Ala Leu Pro Val Ile Asp Ala Phe Thr Gln Gly Ala Ala Val
                      100                   105                   110
      His Ala Gln Leu Gln Val Leu Ala Leu Leu Val Gly His Gly Gln Val
                      115                   120                   125
35    Phe Arg His Thr Asp Gly Lys Gly Gln Val Ala Thr His Leu Pro His
              130                   135                   140
      Lys His Cys Gly Pro Tyr Ile Ala Gly Val His Leu His Ile Val Ala
      145                   150                   155                   160
      Thr Leu Pro Phe His Asp
40                    165


          <210> 1133
          <211> 365
          <212> PRT
45        <213> Homo sapiens


          <400> 1133
      Ser Ala His Ser Arg Leu Ala Ala Arg His Tyr Ser Gly Pro Gly Pro
      1               5                     10                    15
50    Ala Pro Ala Arg Pro Arg Arg Arg Gln Phe Arg Leu Lys Lys Leu Ile
                      20                    25                    30
      Asp Gln Glu Ile Lys Ser Gln Glu Glu Lys Glu Gln Glu Lys Glu Lys
                  35                    40                    45
      Arg Val Thr Thr Leu Lys Glu Glu Leu Thr Lys Leu Lys Ser Phe Ala
55        50                    55                    60
      Leu Met Val Val Asp Glu Gln Gln Arg Leu Thr Ala Gln Leu Thr Leu
      65                    70                    75                    80
      Gln Arg Gln Lys Ile Gln Glu Leu Thr Thr Asn Ala Lys Glu Thr His
                      85                    90                    95
60    Thr Lys Leu Ala Leu Ala Glu Ala Arg Val Gln Glu Glu Glu Gln Lys
                      100                   105                   110
      Ala Thr Arg Leu Glu Lys Glu Leu Gln Thr Gln Thr Thr Lys Phe His
              115                   120                   125
```

```
        Gln Asp Gln Asp Thr Ile Met Ala Lys Leu Thr Asn Glu Asp Ser Gln
            130                 135             140
        Asn Arg Gln Leu Gln Gln Lys Leu Ala Ala Leu Ser Arg Gln Ile Asp
            145             150             155                 160
  5     Glu Leu Glu Glu Thr Asn Arg Ser Leu Arg Lys Ala Glu Glu Glu Leu
                        165             170             175
        Gln Asp Ile Lys Glu Lys Ile Ser Lys Gly Glu Tyr Gly Asn Ala Gly
                    180             185             190
        Ile Met Ala Glu Val Glu Glu Leu Arg Lys Arg Val Leu Asp Met Glu
 10         195             200             205
        Gly Lys Asp Glu Glu Leu Ile Lys Met Glu Glu Gln Cys Arg Asp Leu
            210             215             220
        Asn Lys Arg Leu Glu Arg Glu Thr Leu Gln Ser Lys Asp Phe Lys Leu
        225             230             235                 240
 15  ⌐   Glu Val Glu Lys Leu Ser Lys Arg Ile Met Ala Leu Glu Lys Leu Glu
                    245             250             255
        Asp Ala Phe Asn Lys Ser Lys Gln Glu Cys Tyr Ser Leu Lys Cys Asn
                    260             265             270
        Leu Glu Lys Glu Arg Met Thr Thr Lys Gln Leu Ser Gln Glu Leu Glu
 20         275             280             285
        Ser Leu Lys Val Arg Ile Lys Glu Leu Glu Ala Ile Glu Ser Arg Leu
            290             295             300
        Glu Lys Thr Glu Phe Thr Leu Lys Glu Asp Leu Thr Lys Leu Lys Thr
        305             310             315                 320
 25     Leu Thr Val Met Phe Val Asp Glu Arg Lys Thr Met Ser Glu Lys Leu
                    325             330             335
        Lys Lys Thr Glu Asp Lys Leu Gln Ala Ala Ser Ser Gln Leu Gln Val
                    340             345             350
        Glu Gln Asn Lys Val Thr Thr Val Thr Glu Lys Val Asn
 30         355             360             365


            <210> 1134
            <211> 221
            <212> PRT
 35         <213> Homo sapiens


            <400> 1134
        Ser Gly Lys Met Ala Lys Val Ser Glu Leu Tyr Asp Val Thr Trp Glu
        1               5               10              15
 40     Glu Met Arg Asp Lys Met Arg Lys Trp Arg Glu Glu Asn Ser Arg Asn
                    20              25              30
        Ser Glu Gln Ile Val Glu Val Gly Glu Glu Leu Ile Asn Glu Tyr Ala
                    35              40              45
        Ser Lys Leu Gly Asp Asp Ile Trp Ile Ile Tyr Glu Gln Val Met Ile
 45         50              55              60
        Ala Ala Leu Asp Tyr Gly Arg Asp Asp Leu Ala Leu Phe Cys Leu Gln
        65              70              75                  80
        Glu Leu Arg Arg Gln Phe Pro Gly Ser His Arg Val Lys Arg Leu Thr
                    85              90                  95
 50     Gly Met Arg Phe Glu Ala Met Glu Arg Tyr Asp Asp Ala Ile Gln Leu
                    100             105             110
        Tyr Asp Arg Ile Leu Gln Glu Asp Pro Thr Asn Thr Ala Ala Arg Lys
            115             120             125
        Arg Lys Ile Ala Ile Arg Lys Ala Gln Gly Lys Asn Val Glu Ala Ile
 55         130             135             140
        Arg Glu Leu Asn Glu Tyr Leu Glu Gln Phe Val Gly Asp Gln Glu Ala
        145             150             155                 160
        Trp His Glu Leu Ala Glu Leu Tyr Ile Asn Glu His Asp Tyr Ala Lys
                    165             170             175
 60     Ala Ala Phe Cys Leu Glu Glu Leu Met Met Thr Asn Pro His Asn His
                    180             185             190
        Leu Tyr Cys Gln Gln Tyr Ala Glu Val Lys Tyr Thr Gln Gly Gly Leu
            195             200             205
```

441

```
Glu Thr Leu Glu Leu Ser Arg Lys Phe Leu His Arg His
    210             215             220


        <210> 1135
        <211> 118
        <212> PRT
        <213> Homo sapiens


        <400> 1135
Arg Glu Leu Glu Pro Ala Glu Phe Glu Thr Met Leu Leu Phe Cys Pro
  1               5               10              15
Gly Cys Gly Asn Gly Leu Ile Val Glu Glu Gly Gln Arg Cys His Arg
            20              25              30
Phe Ala Cys Asn Thr Cys Pro Tyr Val His Asn Ile Thr Arg Lys Val
        35              40              45
Thr Asn Arg Lys Tyr Pro Lys Leu Lys Glu Val Asp Asp Val Leu Gly
    50              55              60
Gly Ala Ala Ala Trp Glu Asn Val Asp Ser Thr Ala Glu Ser Cys Pro
65              70              75              80
Lys Cys Glu His Pro Arg Ala Tyr Phe Met Gln Leu Gln Thr Arg Ser
            85              90              95
Ala Asp Glu Pro Met Thr Thr Phe Tyr Lys Cys Cys Asn Ala Gln Cys
            100             105             110
Gly His Arg Trp Arg Asp
        115


        <210> 1136
        <211> 126
        <212> PRT
        <213> Homo sapiens


        <400> 1136
Gly Ser Trp Ala Ile Leu Ala Leu Ile Pro Pro Ala Val Ser Thr Leu
  1               5               10              15
Ser Ile Ala Ala Leu Val Glu Gly Gly His Arg Leu Ile Cys Arg Ala
            20              25              30
Gly Leu Lys Leu His Glu Val Ser Thr Arg Met Phe Ala Phe Gly Thr
        35              40              45
Arg Leu Cys Ser Arg Val Asn Ile Leu Pro Gly Ser Cys Ser Thr Lys
  50              55              60
His Ile Ile His Phe Phe Gln Phe Trp Val Leu Pro Ile Cys Tyr Leu
65              70              75              80
Ala Gly Asp Val Val His Val Gly Ala Arg Val Ala Gly Glu Ala Val
            85              90              95
Ala Ala Leu Ser Leu Leu His Asp Gln Pro Val Pro Ala Ala Gly Ala
            100             105             110
Glu Gln Gln His Gly Leu Glu Leu Arg Arg Leu Gln Leu Pro
        115             120             125


        <210> 1137
        <211> 208
        <212> PRT
        <213> Homo sapiens


        <400> 1137
Ser Leu Arg Phe Tyr Leu Ser Leu Gly Gln Leu Tyr Leu Ser Met Asn
  1               5               10              15
Ile Asp Asp Lys Leu Glu Gly Leu Phe Leu Lys Cys Gly Gly Ile Asp
            20              25              30
Glu Met Gln Ser Ser Arg Thr Val Val Met Gly Gly Val Ser Gly
        35              40              45
Gln Ser Thr Val Ser Gly Glu Leu Gln Asp Ser Val Leu Gln Asp Arg
    50              55              60
```

442

```
Ser Met Pro His Gln Glu Ile Leu Ala Ala Asp Glu Val Leu Gln Glu
65              70              75              80
Ser Glu Met Arg Gln Gln Asp Met Ile Ser His Asp Glu Leu Met Val
            85              90              95
His Glu Glu Thr Val Lys Asn Asp Glu Glu Gln Met Glu Thr His Glu
            100             105             110
Arg Leu Pro Gln Gly Leu Gln Tyr Ala Leu Asn Val Pro Ile Ser Val
            115             120             125
Lys Gln Glu Ile Thr Phe Thr Asp Val Ser Glu Gln Leu Met Arg Asp
    130             135             140
Lys Lys Gln Ile Arg Glu Pro Val Asp Leu Gln Lys Lys Lys Lys Arg
145             150             155             160
Lys Gln Arg Ser Pro Ala Lys Ile Leu Thr Ile Asn Glu Asp Gly Ser
            165             170             175
Leu Gly Leu Lys Thr Pro Lys Ser His Val Cys Glu His Cys Asn Ala
            180             185             190
Ala Phe Arg Thr Asn Tyr Pro Tyr Arg Asp Met Ser Ser Ser Tyr Arg
            195             200             205
```

```
<210> 1138
<211> 121
<212> PRT
<213> Homo sapiens
```

```
<400> 1138
Lys Arg Arg Leu Gln Gly Lys Glu Cys Cys Arg Val Glu Lys Glu Ile
1               5               10              15
Met Val Glu Phe Leu Pro Phe Ile Gly Phe Arg Asn Pro Gln Tyr His
            20              25              30
Leu Asn His Leu Cys His Pro Ile Pro Pro Leu Asn Thr Leu Gly Lys
            35              40              45
Arg Pro Ser Arg Gln Xaa Thr Cys Leu Asn Phe Gln Ala Xaa Asp Ser
    50              55              60
Ser Leu Tyr Pro Arg Ala Gly Ala Glu Ser Arg Gly His Arg Xaa Gln
65              70              75              80
Ala Ala Ala Ala Pro Thr Phe Xaa Gly Ala Leu Arg Gly Gly Glu Gly
            85              90              95
Gly Arg Gly Glu Asn Phe Cys Cys Gly Ser Phe Gly Asn Ser Ser His
            100             105             110
Pro Xaa Ala Phe Leu Leu Phe Leu Pro
    115             120
```

```
<210> 1139
<211> 178
<212> PRT
<213> Homo sapiens
```

```
<400> 1139
Arg Ser Lys Gly Cys Asp Cys Cys Gly Glu Lys Ser Gln Pro Gln Glu
1               5               10              15
Lys Ser Leu Ile Gly Leu Lys Asn Thr Glu Asn Asn Asp Val Glu Ile
            20              25              30
Ser Glu Thr Lys Lys Ala Asp Val Gln Ala Pro Val Ser Pro Ser Glu
            35              40              45
Thr Ser Gln Ala Asn Pro Tyr Ser Glu Gly Gln Phe Leu Asp Glu His
    50              55              60
His Ser Val Asn Phe His Leu Gly Leu Lys Glu Asp Asn Asp Thr Ile
65              70              75              80
Asn Asp Ser Leu Ile Val Ser Glu Thr Lys Ser Lys Glu Asn Thr Met
            85              90              95
Gln Glu Ser Leu Pro Ser Gly Ile Val Asn Phe Arg Glu Glu Ile Cys
            100             105             110
Asp Met Asp Ser Ser Glu Ala Met Ser Leu Glu Ser Gln Glu Ser Pro
```

443

```
                  115                    120                    125
     Asn Glu Asn Phe Lys Thr Val Gly Pro Cys Leu Gly Asp Ser Lys Asn
          130                    135                    140
     Val Ser Gln Glu Ser Leu Glu Thr Lys Glu Glu Lys Pro Glu Glu Thr
 5   145                    150                    155                    160
     Pro Lys Met Glu Leu Ser Leu Glu Asn Val Leu Leu Lys Glu Met His
                    165                    170                    175
     Val Lys

10
          <210> 1140
          <211> 187
          <212> PRT
          <213> Homo sapiens
15
          <400> 1140
     Phe Leu Asn Leu Arg Gly Asp Ile Gly Ser His Trp Leu Gln Phe Lys
      1             5                    10                    15
     Leu Leu Thr Glu Ile Ser Ser Ala Val Phe Ile Leu Thr Asp Asn Ile
20                    20                    25                    30
     Ser Lys Lys Glu Tyr Lys Leu Leu Tyr Ser Met Lys Glu Ser Thr Thr
                    35                    40                    45
     Lys Tyr Tyr Phe Ile Leu Ser Pro Tyr Arg Gly Lys Arg Asn Thr Asn
                50                    55                    60
25   Leu Arg Phe Leu Asn Lys Leu Ile Pro Val Leu Lys Ile Asp His Ser
     65                    70                    75                    80
     His Val Leu Val Lys Val Ser Ser Thr Asp Ser Asp Ser Phe Val Lys
                    85                    90                    95
     Arg Ile Arg Ala Ile Val Gly Asn Val Leu Arg Ala Pro Cys Arg Arg
30                    100                   105                   110
     Val Ser Val Glu Asp Met Ala His Ala Ala Arg Lys Leu Gly Leu Lys
                    115                   120                   125
     Val Asp Glu Asp Cys Glu Glu Cys Gln Lys Ala Lys Asp Arg Met Glu
                    130                   135                   140
35   Arg Ile Thr Arg Lys Ile Lys Asp Ser Asp Ala Tyr Xaa Lys Asp Gln
     145                   150                   155                   160
     Leu Arg Leu Xaa Gly Asp Pro Trp Arg Lys Ala Ala Gln Val Glu Lys
                    165                   170                   175
     Glu Phe Cys Asn Phe Ser Gly Pro Trp Pro Pro
40                    180                   185

          <210> 1141
          <211> 145
          <212> PRT
45        <213> Homo sapiens

          <400> 1141
     Lys Trp Xaa Val Pro Ile Arg His Glu Lys Pro Ser Lys Xaa Gln Arg
      1             5                    10                    15
50   Phe Xaa Ser Xaa Xaa Gln Gln Val Leu Lys Xaa Glu Ser Asp Xaa Thr
                    20                    25                    30
     Asp Gln Phe Lys Arg Cys Tyr Gln Glu Tyr Xaa Ser Pro Gln Gly Arg
                    35                    40                    45
     Xaa Thr Ser Ser Ser Leu Xaa Cys Xaa Ser Ser Cys Gln Gly Ser Cys
55        50                    55                    60
     Gly Val Gly Pro Leu Xaa Ser Cys Xaa Leu Ser Leu Ala Pro Gly Val
     65                    70                    75                    80
     Gly Ala Ala Ser Leu Val Thr Ala Gly Pro Gly Gly Gln Val Val Pro
                    85                    90                    95
60   Gly Xaa Arg Trp Gly Ser Cys Pro Glu Glu Ala Glu Val Gly Leu Ala
                    100                   105                   110
     Pro Ala Gln Pro Lys Gly Leu Gln Trp Thr Ser Ile Gln Asp Val Ser
                    115                   120                   125
```

444

Ala Arg Gly Val Gln Gly Thr Pro Met Ala Pro Tyr Leu Leu Thr Asp
    130   135   140
Leu
145

<210> 1142
<211> 67
<212> PRT
<213> Homo sapiens

<400> 1142
Xaa His Phe Xaa Phe Leu Thr Leu Val Xaa Xaa Asn Xaa Xaa Thr Phe
1   5   10   15
Xaa Phe Cys Ser Ala Ser His Val Glu Trp Ala Pro Xaa Ile Phe Lys
        20   25   30
Xaa Pro Lys His Lys Pro His Met Gly Ala Pro Phe Lys Lys Xaa Val
        35   40   45
Gly His Xaa Xaa Thr Phe Leu Asn Leu Xaa Thr Gly Val Phe Leu Asp
    50   55   60
Xaa Leu Lys
65

<210> 1143
<211> 149
<212> PRT
<213> Homo sapiens

<400> 1143
Glu Asn Glu Val Lys Leu Leu Val Glu Arg Met Met Ala Leu Gln Thr
1   5   10   15
Asp Ile Val Asp Leu Gln Arg Ser Pro Met Gly Arg Lys Gln Gly Gly
        20   25   30
Thr Leu Asp Asp Leu Glu Glu Gln Ala Arg Glu Leu Tyr Arg Arg Leu
        35   40   45
Arg Glu Lys Pro Arg Asp Gln Arg Thr Glu Gly Asp Ser Gln Glu Met
    50   55   60
Val Arg Leu Leu Leu Gln Ala Ile Gln Ser Phe Glu Lys Lys Val Arg
65   70   75   80
Val Ile Tyr Thr Gln Leu Ser Lys Thr Val Val Cys Lys Gln Lys Ala
                85   90   95
Leu Glu Leu Leu Pro Lys Val Glu Glu Val Val Ser Leu Met Asn Glu
            100   105   110
Asp Glu Lys Thr Val Val Arg Leu Gln Glu Lys Arg Gln Lys Glu Leu
        115   120   125
Trp Asn Leu Leu Lys Ile Ala Cys Thr Arg Ser Val Val Leu Ser Val
    130   135   140
Glu Thr Pro Ile Ala
145

<210> 1144
<211> 126
<212> PRT
<213> Homo sapiens

<400> 1144
His Pro Arg Pro Ala Arg Cys Pro Leu Val Thr Pro Thr Pro Thr Glu
1   5   10   15
Leu Glu Arg Leu Arg Leu Arg Ser Arg Pro Val Tyr Gly Val Cys Pro
        20   25   30
Val Tyr Glu Asp Val Pro Ala Arg Asn Glu Arg Ile Tyr Val Tyr Glu
        35   40   45
Asn Lys Lys Glu Ala Phe Ala Ser Cys Gln Asp Asp Gln Arg Val Arg
    50   55   60

715

```
Phe Lys Ala Phe Ser Pro Xaa Lys Thr Leu Lys Asn Leu Xaa Lys Glu
65              70              75                      80
Phe Val Asn Ile Ser Xaa Ser Asn Lys Thr Ser Leu His Xaa Phe Cys
                85              90                      95
Glu Asn Asn Phe Thr Leu Phe Asn Asp Lys Leu Lys Xaa Val Gly Leu
            100             105                     110
Xaa Asn Lys Thr Ala Pro Xaa Ala Ser Asp Ser Ser Lys Ile
        115             120                 125


        <210> 1145
        <211> 152
        <212> PRT
        <213> Homo sapiens


        <400> 1145
Arg Pro Ala Ala Pro Ala Ser Gly Glu Met Thr Met Asp Ala Leu Leu
1               5               10              15
Ala Arg Leu Lys Leu Leu Asn Pro Asp Asp Leu Arg Glu Glu Ile Val
            20              25              30
Lys Ala Gly Leu Lys Cys Gly Pro Ile Thr Ser Thr Thr Arg Phe Ile
            35              40              45
Phe Glu Lys Lys Leu Ala Gln Ala Leu Leu Glu Gln Gly Gly Arg Leu
        50              55              60
Ser Ser Phe Tyr His His Glu Ala Gly Val Thr Ala Leu Ser Gln Asp
65              70              75                      80
Pro Gln Arg Ile Leu Lys Pro Ala Glu Gly Asn Pro Thr Asp Gln Ala
                85              90                      95
Gly Phe Ser Glu Asp Arg Asp Phe Gly Tyr Ser Val Gly Leu Asn Pro
            100             105                     110
Pro Glu Glu Glu Ala Val Thr Ser Lys Thr Cys Ser Val Pro Pro Ser
            115             120                     125
Asp Thr Asp Thr Tyr Arg Ala Gly Ala Thr Ala Ser Lys Glu Pro Pro
    130             135                 140
Cys Leu Trp Gly Val Ser Ser Val
145             150


        <210> 1146
        <211> 176
        <212> PRT
        <213> Homo sapiens


        <400> 1146
Pro Arg Gly Ala Phe Met Gln Leu Ile Thr Val Ala Glu Gly Phe Ser
1               5               10              15
Gln Asp Leu Gly Cys Asp His Ile Leu Val Ile Asp Ser Gly Gly Leu
            20              25              30
Ile Gly Gly Ala Leu Thr Ser Ala Gly Asp Arg Phe Glu Leu Glu Ala
            35              40              45
Ser Leu Ala Thr Leu Leu Met Gly Leu Ser Asn Val Thr Val Ile Ser
    50              55              60
Leu Ala Glu Thr Lys Asp Ile Pro Ala Ala Ile Leu His Ala Phe Leu
65              70              75                      80
Arg Leu Glu Lys Thr Gly His Met Pro Asn Tyr Gln Phe Val Tyr Gln
                85              90                      95
Asn Leu His Asp Val Ser Val Pro Gly Pro Arg Pro Arg Asp Lys Arg
            100             105                     110
Gln Leu Leu Asp Pro Pro Gly Asp Leu Ser Arg Ala Ala Gln Met
            115             120                 125
Glu Lys Gln Gly Asp Gly Phe Arg Ala Leu Ala Gly Leu Ala Phe Cys
    130             135                 140
Asp Pro Glu Asn Asn Thr Ser Gly Thr Ser Ser Leu Trp His Gly His
145             150             155                     160
Leu His Gly Arg Ser Glu Leu Trp Pro Thr Val Lys Pro Tyr Leu Asn
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                    165   170   175

<210> 1147
<211> 113
<212> PRT
<213> Homo sapiens

<400> 1147
Met Phe Leu Phe Trp Phe Asp Xaa Xaa Phe Leu Met Phe Ser Ser Arg
1   5   10   15
Ile Ser Ser Ile Gln Ile Trp Phe His Cys Arg Pro Lys Leu Thr Ala
            20   25   30
Ala Met Glu Val Ser Val Pro Gln Ala Gly Cys Ala Arg Cys Val Val
            35   40   45
Leu Arg Val Ala Glu Gly Gln Ala Cys Gln Cys Pro Glu Ala Val Ala
        50   55   60
Leu Phe Leu His Leu Gly Cys Ser Pro Ala Gln Val Thr Arg Trp Ile
65   70   75   80
Gln Glu Leu Ser Leu Val Ser Gly Pro Arg Ala Gly Asn Arg Tyr Ile
                85   90   95
Met Lys Val Leu Val Tyr Lys Leu Val Val Gly His Val Pro Arg Phe
            100   105   110
Phe

<210> 1148
<211> 136
<212> PRT
<213> Homo sapiens

<400> 1148
Glu Asp Glu Gln Lys Thr Glu Gly Leu Glu Ser Pro Gln Thr Val Phe
1   5   10   15
Lys Xaa Xaa Ser Asp Leu Thr Asp Gln Leu Gln Arg Cys Tyr Gln Glu
            20   25   30
Tyr Xaa Ser Pro Gln Gly Arg Glu Thr Ser Ser Ser Leu Xaa Cys Xaa
        35   40   45
Ser Ser Cys Gln Gly Ser Cys Gly Val Gly Pro Leu Tyr Ser Cys Ser
        50   55   60
Xaa Ser Leu Ala Pro Gly Val Gly Ala Ala Ser Leu Val Thr Ala Gly
65   70   75   80
Pro Gly Gly Gln Val Val Pro Gly Xaa Arg Trp Gly Ser Cys Pro Xaa
                85   90   95
Glu Ala Xaa Val Gly Leu Ala Pro Ala Gln Pro Lys Gly Leu Gln Trp
            100   105   110
Thr Ser Ile Gln Asp Val Ser Ala Arg Gly Val Gln Gly Thr Pro Met
        115   120   125
Xaa Pro Tyr Leu Leu Thr Asp Leu
130   135

<210> 1149
<211> 109
<212> PRT
<213> Homo sapiens

<400> 1149
Glu Gly Phe Leu Trp Xaa Thr Pro Phe Leu Met Gly Xaa Pro Asn Gly
1   5   10   15
Gly Val Val Xaa Leu Xaa Pro Xaa Lys Arg Ala Gly Ala Pro Ile Arg
            20   25   30
His Glu Lys Thr Ser Lys Arg Gln Arg Val Trp Ser Leu Leu Lys Gln
            35   40   45
Cys Leu Lys Xaa Xaa Val Thr Ser Gln Thr Ser Phe Arg Asp Val Thr

447

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          50                    55                    60
     Lys Asn Ile Xaa Ala Pro Arg Val Gly Arg Gln Ala Ala Val Cys Xaa
     65                    70                    75                    80
     Xaa Ser Ala Pro Val Lys Asp Pro Ala Gly Trp Ala Leu Cys Ile Ala
                           85                    90                    95
     Ala Xaa Cys His Trp Pro Leu Glu Trp Glu Gln Arg Pro
                  100                   105


          <210> 1150
          <211> 88
          <212> PRT
          <213> Homo sapiens


          <400> 1150
     Ser Val Trp Xaa Arg Tyr Asn Lys Val Leu Xaa Gly Thr Thr Xaa Arg
      1               5                    10                   15
     Pro Val Asn Xaa Ser Trp Ala Gly Val Arg Glu Ala Phe Thr Asp Gln
                  20                   25                   30
     Ser Ile Asn Thr Xaa Pro Trp Glu Cys Leu Ala His His Gly His Ser
                  35                   40                   45
     His Leu Glu Cys Trp Ser Thr Gly Gly Pro Trp Val Gly Arg Glu Gln
                  50                   55                   60
     Gly Leu Leu Xaa Leu Pro Xaa Asp Asn Phe Pro Thr Xaa Val Leu Gly
     65                    70                    75                    80
     Pro Pro Ala Arg Leu Gly Leu Gln
                       85


          <210> 1151
          <211> 111
          <212> PRT
          <213> Homo sapiens


          <400> 1151
     Gly Gln Xaa Gln Cys Ser Xaa Cys Asn Lys Xaa Phe Pro Pro Xaa Xaa
      1               5                    10                   15
     Val Xaa Ser Thr Cys Thr Cys Ala Ser Xaa Gly Lys Xaa Ser Pro Tyr
                  20                   25                   30
     Glu Cys Tyr Ile Ala Lys Xaa Lys Phe Ser His Lys Thr Phe Leu Glu
                  35                   40                   45
     Arg His Val Ala Leu His Ser Ala Ser Asn Gly Thr Pro Pro Ala Gly
                  50                   55                   60
     Thr Pro Pro Gly Ala Arg Ala Gly Pro Pro Gly Val Val Ala Cys Thr
     65                    70                    75                    80
     Glu Gly Thr Thr Tyr Val Cys Ser Val Cys Pro Ala Lys Phe Asp Gln
                       85                   90                   95
     Ile Glu Gln Phe Asn Asp His Met Arg Met His Val Ser Asp Gly
                  100                   105                   110


          <210> 1152
          <211> 176
          <212> PRT
          <213> Homo sapiens


          <400> 1152
     Gln Ser Gly Tyr Arg Pro Phe Leu His His Leu Gln Pro Phe Thr Trp
      1               5                    10                   15
     His Glu Lys Ile Lys Lys Lys Asp Pro Lys Cys Ile Phe Ala Cys Glu
                  20                   25                   30
     Glu Met Ser Gly Glu Val Arg Phe Ser Ser His Leu Pro Gln Pro Asn
                  35                   40                   45
     Ser Leu Cys Ser Leu Ile Val Glu Pro Met Glu Asn Trp Leu Gln Leu
                  50                   55                   60
     Met Leu Asn Trp Asp Pro Gln Gln Arg Gly Gly Pro Val Asp Leu Thr
```

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         65                      70                      75                      80
         Leu Lys Gln Pro Arg Cys Phe Val Leu Met Asp His Ile Leu Asn Leu
                         85                      90                      95
         Lys Ile Val His Ile Leu Asn Met Thr Ser Ala Lys Ile Ile Ser Phe
5                        100                     105                     110
         Leu Leu Pro Pro Asp Glu Ser Leu His Ser Leu Gln Ser Arg Ile Glu
                         115                     120                     125
         Arg Glu Thr Gly Ile Asn Thr Gly Ser Gln Glu Leu Leu Ser Glu Thr
                 130                     135                     140
10       Gly Ile Ser Leu Asp Pro Arg Lys Pro Ala Ser Gln Cys Val Leu Asp
         145                     150                     155                     160
         Gly Val Arg Gly Cys Asp Ser Tyr Met Xaa Tyr Leu Phe Asp Lys Lys
                         165                     170                     175


15               <210> 1153
                 <211> 217
                 <212> PRT
                 <213> Homo sapiens


20               <400> 1153
         Glu Ile Val Glu Pro Glu Leu Ser Ile Glu Val Cys Glu Glu Lys Ala
         1                       5                       10                      15
         Ser Ala Val Leu Pro Pro Thr Cys Ile Gln Leu Leu Asp Ser Ser Asn
                         20                      25                      30
25       Trp Lys Glu Arg Leu Ala Cys Met Glu Glu Phe Gln Lys Ala Val Glu
                         35                      40                      45
         Leu Met Asp Arg Thr Glu Met Pro Cys Gln Ala Leu Val Arg Met Leu
                 50                      55                      60
         Ala Lys Lys Pro Gly Trp Lys Glu Thr Asn Phe Gln Val Met Gln Met
30       65                      70                      75                      80
         Lys Leu His Ile Val Ala Leu Ile Ala Gln Lys Gly Asn Phe Ser Lys
                         85                      90                      95
         Thr Ser Ala Gln Val Val Leu Asp Gly Leu Val Asp Lys Ile Gly Asp
                         100                     105                     110
35       Val Lys Cys Gly Asn Asn Ala Lys Glu Ala Met Thr Ala Ile Ala Glu
                 115                     120                     125
         Ala Cys Met Leu Pro Trp Thr Ala Glu Gln Val Val Ser Met Ala Phe
                 130                     135                     140
         Ser Gln Lys Asn Pro Lys Asn Gln Ser Glu Thr Leu Asn Trp Leu Ser
40       145                     150                     155                     160
         Asn Ala Ile Lys Glu Phe Gly Phe Ser Gly Leu Asn Val Lys Ala Phe
                         165                     170                     175
         Ile Asn Asn Val Lys Thr Ala Leu Ala Ala Thr Asn Pro Ala Val Arg
                 180                     185                     190
45       Thr Ala Ala Ile Thr Leu Leu Gly Val Met Tyr Leu Tyr Val Xaa Pro
                 195                     200                     205
         Ser Phe Ala Lys Trp Ser Phe Xaa Gly
         210                     215


50               <210> 1154
                 <211> 261
                 <212> PRT
                 <213> Homo sapiens


55               <400> 1154
         Gly Leu Lys Val Leu Lys Gly Ile Leu Xaa Pro His Gly Asp Glu Ser
         1                       5                       10                      15
         Ile Glu Gln Leu Lys Thr Gln Met Ser Ser Cys Val Ala Lys Trp Leu
                         20                      25                      30
60       Gln Asp Glu Met Phe His Ser Asp Phe Gln His His Asn Lys Ala Leu
                 35                      40                      45
         Ala Val Met Val Asp His Leu Glu Ser Glu Lys Glu Gly Val Ile Gly
                 50                      55                      60
```

449

```
      Cys Leu Asp Leu Ile Leu Lys Trp Leu Thr Leu Arg Phe Phe Asp Thr
      65                  70                  75                  80
      Asn Thr Ser Val Leu Met Lys Ala Leu Glu Tyr Leu Lys Leu Leu Phe
                      85                  90                  95
  5   Thr Leu Leu Ser Glu Glu Glu Tyr His Leu Thr Glu Asn Glu Ala Ser
                      100                 105                 110
      Ser Phe Ile Pro Tyr Leu Val Val Lys Val Gly Glu Pro Lys Asp Val
                      115                 120                 125
      Ile Arg Lys Asp Val Arg Ala Ile Leu Asn Arg Met Cys Leu Val Tyr
  10      130                 135                 140
      Pro Ala Ser Lys Met Phe Pro Phe Ile Met Glu Gly Thr Lys Ser Lys
      145                 150                 155                 160
      Asn Ser Lys Gln Arg Ala Glu Cys Leu Glu Glu Leu Gly Cys Leu Val
                      165                 170                 175
  15  Glu Ser Tyr Gly Met Asn Val Cys Gln Pro Thr Pro Gly Lys Ala Leu
                      180                 185                 190
      Lys Glu Ile Ala Val His Ile Gly Asp Arg Asp Asn Ala Val Arg Asn
                      195                 200                 205
      Ala Ala Leu Asn Thr Ile Val Thr Val Tyr Asn Val His Gly Asp Gln
  20      210                 215                 220
      Val Phe Lys Leu Ile Gly Asn Leu Ser Glu Lys Asp Met Ser Met Leu
      225                 230                 235                 240
      Glu Ser Thr Ser Arg Ala Ala·Ala Gly Pro Ser Ile Phe His Pro Gly
                      245                 250                 255
  25  Gly Tyr Gln Val Ser
                      260


          <210> 1155
          <211> 174
  30      <212> PRT
          <213> Homo sapiens


          <400> 1155
      Thr Glu Pro Cys Arg Thr Ala Glu Asn Cys Thr Ala Thr Met Ser Glu
  35  1               5                   10                  15
      Asn Asn Lys Asn Ser Leu Glu Ser Ser Leu Arg Gln Leu Lys Cys His
                      20                  25                  30
      Phe Thr Trp Asn Leu Met Glu Gly Glu Asn Ser Leu Asp Asp Phe Glu
                      35                  40                  45
  40  Asp Lys Val Phe Tyr Arg Thr Glu Phe Gln Asn Arg Glu Phe Lys Ala
          50                  55                  60
      Thr Met Cys Asn Leu Leu Ala Tyr Leu Lys His Leu Lys Gly Gln Asn
      65                  70                  75                  80
      Glu Ala Ala Leu Glu Cys Leu Arg Lys Ala Glu Glu Leu Ile Gln Gln
  45                  85                  90                  95
      Glu His Ala Asp Gln Ala Glu Ile Arg Ser Leu Val Thr Trp Gly Asn
                      100                 105                 110
      Tyr Ala Trp Val Tyr Tyr His Met Gly Arg Leu Ser Asp Val Gln Ile
                      115                 120                 125
  50  Tyr Val Asp Lys Val Lys His Val Cys Glu Lys Phe Ser Ser Pro Tyr
          130                 135                 140
      Arg Ile Glu Ser Pro Glu Leu Asp Cys Glu Glu Gly Trp Thr Arg Leu
      145                 150                 155                 160
      Lys Cys Gly Gly Asn Gln Asn Glu Arg Ala Lys Val Cys Phe
  55                  165                 170


          <210> 1156
          <211> 211
          <212> PRT
  60      <213> Homo sapiens


          <400> 1156
      Ala Ala Ala Ala Thr Thr Ala Phe Gly Cys Arg Ile Trp Asn Pro Cys
```

```
       1                    5                    10                   15
       Ala Ala Leu Thr Met Lys Gln Ser Ser Asn Val Pro Ala Phe Leu Ser
                   20                   25                   30
       Lys Leu Trp Thr Leu Val Glu Glu Thr His Thr Asn Glu Phe Ile Thr
  5                35                   40                   45
       Trp Ser Gln Asn Gly Gln Ser Phe Leu Val Leu Asp Glu Gln Arg Phe
           50                   55                   60
       Ala Lys Glu Ile Leu Pro Lys Tyr Phe Lys His Asn Asn Met Ala Ser
       65                   70                   75                   80
 10    Phe Val Arg Gln Leu Asn Met Tyr Gly Phe Arg Lys Val Val His Ile
                   85                   90                   95
       Asp Ser Gly Ile Val Lys Gln Glu Arg Asp Gly Pro Val Glu Phe Gln
                   100                  105                  110
       His Pro Tyr Phe Lys Gln Gly Gln Asp Asp Leu Leu Glu Asn Ile Lys
 15                115                  120                  125
       Arg Lys Val Ser Ser Ser Lys Pro Glu Glu Asn Lys Ile Arg Gln Glu
           130                  135                  140
       Asp Leu Thr Lys Ile Ile Ser Ser Ala Gln Lys Val Gln Ile Lys Gln
       145                  150                  155                  160
 20    Glu Thr Ile Glu Ser Arg Leu Ser Glu Leu Lys Ser Glu Asn Glu Ser
                   165                  170                  175
       Leu Trp Xaa Glu Xaa Ser Glu Phe Gln Gln Lys His Xaa Gln Gln Gln
                   180                  185                  190
       Gln Val Ile Xaa Lys Asn Val Ser Leu Leu Val His Trp Phe Lys Ile
 25                195                  200                  205
       Thr Gln Leu
           210


           <210> 1157
 30        <211> 231
           <212> PRT
           <213> Homo sapiens


           <400> 1157
 35    Arg Gln Asp Leu Tyr Ser Ala Arg Asp Leu Gln Gly Leu Thr Val Glu
       1                    5                    10                   15
       His Ala Ile Asp Ser Phe Arg Glu Gly Glu Thr Met Ile Leu Thr Leu
                   20                   25                   30
       Lys Asp Lys Gly Val Leu Gln Glu Glu Glu Asp Val Leu Val Asn Val
 40                35                   40                   45
       Asn Leu Val Asp Lys Glu Arg Ala Glu Lys Asn Val Glu Leu Arg Lys
           50                   55                   60
       Lys Lys Pro Asp Tyr Leu Pro Tyr Ala Glu Asp Glu Ser Val Asp Asp
       65                   70                   75                   80
 45    Leu Ala Gln Gln Lys Pro Arg Ser Ile Leu Ser Lys Tyr Asp Glu Glu
                   85                   90                   95
       Leu Glu Gly Glu Arg Pro His Ser Phe Arg Leu Glu Gln Gly Gly Thr
                   100                  105                  110
       Ala Asp Gly Leu Arg Glu Arg Glu Leu Glu Glu Ile Arg Ala Lys Leu
 50                115                  120                  125
       Arg Leu Gln Ala Gln Ser Leu Ser Thr Val Gly Pro Arg Leu Ala Ser
           130                  135                  140
       Glu Tyr Leu Thr Pro Glu Glu Met Val Thr Phe Lys Lys Thr Lys Arg
       145                  150                  155                  160
 55    Arg Val Lys Lys Ile Arg Lys Lys Glu Lys Glu Val Val Val Arg Ala
                   165                  170                  175
       Asp Asp Leu Leu Pro Leu Gly Asp Gln Thr Gln Asp Gly Asp Phe Gly
                   180                  185                  190
       Phe Lys Leu Xaa Gly Thr Gly Ser Pro Pro Lys Cys Pro Lys Xaa Glu
 60                195                  200                  205
       Glu Glu Glu Arg Thr Phe Ala Leu Xaa Pro Xaa Arg Arg Thr Thr Pro
                   210                  215                  220
       Arg Ser Gly Arg Thr Leu Asp
```

451

225   230

```
              <210> 1158
              <211> 76
    5         <212> PRT
              <213> Homo sapiens


              <400> 1158
         Ser Leu Arg Phe Tyr Leu Ser Leu Gly Gln Leu Tyr Leu Ser Met Asn
   10    1               5                   10              15
         Ile Asp Asp Lys Leu Glu Gly Leu Phe Leu Lys Cys Gly Gly Ile Xaa
                     20                  25              30
         Xaa Met Gln Ser Ser Arg Thr Met Val Xaa Met Gly Gly Val Ser Xaa
                     35                  40              45
   15    Xaa Leu Leu Cys Xaa Gly Lys Leu Pro Gly Phe Xaa Thr Xaa Lys Ile
                 50                  55                  60
         Glu Xaa Xaa Pro Xaa Xaa Glu Asp Pro Cys Cys Xaa
         65                  70              75


   20         <210> 1159
              <211> 148
              <212> PRT
              <213> Homo sapiens


   25         <400> 1159
         Thr Ser Arg Xaa Met Xaa Pro Cys Pro Ser Ile Ala Phe Asp Pro Gly
         1               5                   10              15
         Met Asn Phe Xaa Leu Arg Thr Thr Pro Asp Lys Ser His Phe Gly Leu
                     20                  25              30
   30    Ile Val Gly Asp Ser Gln His Ser Phe Pro Phe Ser Gly Asp Glu Thr
                     35                  40              45
         Asn His Val Xaa Ala Thr Ser Thr Gln Asp Phe Xaa Asp Gln Val Thr
                 50                  55                  60
         Ser Gln Lys Lys Ala Glu Ala Gln Pro Val His Gln Ala Tyr Gln Met
   35    65                  70                  75              80
         Ser Ser Phe Glu Gln Pro Phe Arg Ala Pro Tyr His Gly Ser Arg Ala
                         85                  90                  95
         Gly Ile Ala Thr Gln Phe Ser Thr Ala Asn Gly Gln Val Asn Leu Arg
                     100                 105                 110
   40    Gly Pro Gly Thr Ser Ala Glu Phe Ser Glu Phe Pro Leu Val Asn Val
                     115                 120                 125
         Asn Asp Asn Arg Ala Gly Met Thr Ser Ser Pro Asp Ala Thr Thr Gly
                 130                 135                 140
         Gln Thr Phe Gly
   45    145


              <210> 1160
              <211> 217
              <212> PRT
   50         <213> Homo sapiens


              <400> 1160
         Ser Leu Pro Ala Ser Phe Ser Pro Leu Val Pro Ser Thr Ser Cys Glu
         1               5                   10              15
   55    Gly Ile His Leu Cys Ala Glu Leu Leu Gly Thr Met Ala Ser Leu Ser
                     20                  25              30
         Leu Ala Pro Val Asn Ile Phe Lys Ala Gly Ala Asp Glu Glu Arg Ala
                     35                  40              45
         Glu Thr Ala Arg Leu Thr Ser Phe Ile Gly Ala Ile Ala Ile Gly Asp
   60    50                  55                  60
         Leu Val Lys Ser Thr Leu Gly Pro Lys Gly Met Asp Lys Ile Leu Leu
         65                  70                  75              80
         Ser Ser Gly Arg Asp Ala Ser Leu Met Val Thr Asn Asp Gly Ala Thr
```

452

```
                        85                  90                  95
        Ile Leu Lys Asn Ile Gly Val Asp Asn Pro Ala Ala Lys Val Leu Val
                        100                 105                 110
        Asp Met Ser Arg Val Gln Asp Asp Glu Val Gly Asp Gly Thr Thr Ser
  5                     115                 120                 125
        Val Thr Val Leu Ala Ala Glu Leu Leu Arg Glu Ala Glu Ser Leu Ile
                        130                 135                 140
        Ala Lys Lys Ile His Pro Gln Thr Ile Ile Ala Gly Trp Arg Glu Ala
        145                 150                 155                 160
 10     Thr Lys Ala Ala Arg Xaa Ala Leu Leu Ser Ser Ala Val Asp His Gly
                        165                 170                 175
        Ser His Glu Xaa Xaa Phe Arg Xaa Glu Leu Met Asn Ile Xaa Gly Pro
                        180                 185                 190
        His Tyr Pro Gln Asn Phe Leu Leu Xaa Thr Lys Thr Thr Leu Gln Lys
 15                     195                 200                 205
        Xaa Ala Val Xaa Xaa Val Leu Lys Leu
        210                 215
```

```
        <210> 1161
 20     <211> 226
        <212> PRT
        <213> Homo sapiens


        <400> 1161
 25     Pro Asp Gln Leu Asp Pro Xaa Val Ala Arg Lys Leu Leu Xaa Lys Lys
        1                   5                   10                  15
        Asn Pro Ser Cys Phe Pro Arg Arg Arg Arg Ser Arg Leu Met Thr Leu
                        20                  25                  30
        Thr Glu Val Ser Xaa Ser Met Lys Ala Phe Ile Ser Lys Val Ser Thr
 30                     35                  40                  45
        Xaa Lys Gly Ala Glu Leu Pro Arg Glu Pro Phe Glu Ala Pro Ile Thr
        50                  55                  60
        Phe Asp Ala Asp Ser Phe Leu Asn Tyr Phe Asp Lys Ile Leu Gly Pro
        65                  70                  75                  80
 35     Arg Pro Asn Glu Ser Asp Ser Asp Asp Leu Asp Asp Glu Asp Phe Glu
                        85                  90                  95
        Cys Leu Asp Ser Asp Asp Asp Leu Asp Phe Glu Thr His Glu Pro Gly
                        100                 105                 110
        Glu Glu Ala Ser Leu Lys Gly Thr Leu Asp Asn Leu Lys Ser Tyr Met
 40                     115                 120                 125
        Ala Gln Met Asp Gln Glu Leu Ala His Thr Cys Ile Ser Lys Ser Phe
        130                 135                 140
        Thr Thr Arg Asn Gln Val Glu Pro Val Ser Gln Thr Thr Asp Asn Asn
        145                 150                 155                 160
 45     Ser Asp Glu Glu Asp Xaa Gly Thr Gly Glu Ser Val Met Ala Pro Val
                        165                 170                 175
        Asp Val Asp Leu Asn Leu Val Ser Asn Ile Leu Glu Ser Tyr Ser Ser
                        180                 185                 190
        Gln Ala Gly Leu Ala Gly Pro Ala Ser Asn Leu Leu Gln Ser Met Gly
 50                     195                 200                 205
        Val Gln Leu Pro Asp Asn Thr Asp His Arg Pro Thr Ser Lys Pro Thr
        210                 215                 220
        Lys Asn
        225
```

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 55
        <210> 1162
        <211> 237
        <212> PRT
        <213> Homo sapiens
 60
        <400> 1162
        Glu Val Thr Arg Ser Leu Leu Gln Arg Trp Gly Ala Ser Phe Arg Arg
        1                   5                   10                  15
```

```
     Gly Ala Asp Phe Asp Ser Trp Gly Gln Leu Val Glu Ala Ile Asp Glu
              20                  25                  30
     Tyr Gln Ile Leu Ala Arg His Leu Gln Lys Glu Ala Gln Ala Gln His
              35                  40                  45
  5  Asn Asn Ser Glu Phe Thr Glu Glu Gln Lys Lys Thr Ile Gly Lys Ile
              50                  55                  60
     Ala Thr Cys Leu Glu Leu Arg Ser Ala Ala Leu Gln Ser Thr Gln Ser
     65                  70                  75                  80
     Gln Glu Glu Phe Lys Leu Glu Asp Leu Lys Lys Leu Glu Pro Ile Leu
 10                  85                  90                  95
     Lys Asn Ile Leu Thr Tyr Asn Lys Glu Phe Pro Phe Asp Val Gln Pro
                     100                 105                 110
     Val Pro Leu Arg Arg Ile Leu Ala Pro Gly Glu Glu Glu Asn Leu Glu
                     115                 120                 125
 15  Phe Glu Glu Asp Glu Glu Glu Gly Gly Ala Gly Ala Gly Ser Pro Asp
              130                 135                 140
     Ser Phe Pro Ala Arg Val Pro Gly Thr Leu Leu Pro Arg Leu Pro Ser
     145                 150                 155                 160
     Glu Pro Gly Met Thr Leu Leu Thr Ile Arg Ile Glu Lys Ile Gly Leu
 20                  165                 170                 175
     Lys Asp Ala Gly Gln Cys Ile Asp Pro Tyr Ile Thr Val Ser Val Lys
                     180                 185                 190
     Asp Leu Asn Gly Ile Asn Leu Thr Pro Val Pro Arg Xaa Xaa Xaa Gly
                     195                 200                 205
 25  Phe Lys Lys Lys Lys Ile His Met Phe Ile Leu Met Xaa Gly His Trp
              210                 215                 220
     Ser Phe Gln Lys Xaa Cys Trp Xaa Lys Leu Thr Gln Lys
     225                 230                 235


 30          <210> 1163
             <211> 189
             <212> PRT
             <213> Homo sapiens


 35          <400> 1163
     Gly Ser Arg Phe Ser Ser Thr Leu Thr Gly Trp Leu Gly Gln Leu Arg
      1               5                  10                  15
     Arg Gly Ser Gln Leu Thr Met Gly Asp Pro Ser Lys Gln Asp Ile Leu
                     20                  25                  30
 40  Thr Ile Phe Lys Arg Leu Arg Ser Val Pro Thr Asn Lys Val Cys Phe
              35                  40                  45
     Asp Cys Gly Ala Lys Asn Pro Ser Trp Ala Ser Ile Thr Tyr Gly Val
              50                  55                  60
     Phe Leu Cys Ile Asp Cys Ser Gly Ser His Arg Ser Leu Gly Val His
 45  65                  70                  75                  80
     Leu Ser Phe Ile Arg Ser Thr Glu Leu Asp Ser Asn Trp Ser Trp Phe
                     85                  90                  95
     Gln Leu Arg Cys Met Gln Val Gly Gly Asn Ala Ser Ala Ser Ser Phe
                     100                 105                 110
 50  Phe His Gln His Gly Cys Ser Thr Asn Asp Thr Asn Ala Lys Tyr Asn
              115                 120                 125
     Ser Arg Ala Ala Gln Leu Tyr Arg Glu Lys Ile Lys Ser Leu Ala Ser
              130                 135                 140
     Gln Ala Thr Arg Lys His Gly Thr Asp Leu Trp Leu Asp Ser Cys Val
 55  145                 150                 155                 160
     Val Pro Pro Leu Ser Pro Pro Lys Glu Glu Asp Phe Phe Ala Ser
                     165                 170                 175
     His Val Ser Ser Glu Val Ser Asp Thr Xaa Val Gly Ile
                     180                 185

 60          <210> 1164
             <211> 167
             <212> PRT
```

<213> Homo sapiens

<400> 1164

```
Gly Glu Asp Val Arg Gly Val Leu Lys Arg Arg Val Glu Thr Arg Gln
1           5                   10                  15
His Thr Xaa Glu Ala Ile Arg Gln Gln Glu Val Glu Gln Leu Asp Phe
        20                  25                  30
Arg Asp Leu Leu Gly Lys Lys Val Ser Thr Lys Thr Leu Ser Glu Asp
        35                  40                  45
Asp Leu Lys Glu Ile Pro Ala Glu Gln Met Asp Phe Arg Ala Asn Leu
        50                  55                  60
Gln Arg Gln Val Lys Pro Lys Thr Val Ser Glu Glu Glu Arg Lys Val
65                  70                  75                  80
His Ser Pro Gln Gln Val Asp Phe Arg Ser Val Leu Ala Lys Lys Gly
                85                  90                  95
Thr Ser Lys Thr Pro Val Pro Glu Lys Val Pro Pro Pro Lys Pro Ala
                100                 105                 110
Thr Pro Asp Phe Arg Ser Val Leu Gly Gly Lys Lys Lys Leu Pro Ala
                115                 120                 125
Glu Asn Gly Ser Ser Ser Ala Glu Thr Leu Asn Ala Lys Ala Val Glu
        130                 135                 140
Ser Ser Lys Pro Leu Ser Asn Ala Gln Pro Ser Gly Pro Leu Lys Pro
145                 150                 155                 160
Val Gly Asn Ala Gln Ala Cys
                165
```

<210> 1165
<211> 242
<212> PRT
<213> Homo sapiens

<400> 1165

```
Tyr Leu Gln Pro Thr Trp Asp Phe Asp Xaa Arg Gly His Ser Met Arg
1           5                   10                  15
Phe Xaa Asp Asp Ala Lys Asp Phe Ile Ser Ile Leu Leu Lys Lys Asp
        20                  25                  30
Met Lys Thr Xaa Leu Asp Cys Thr Gln Cys Xaa Gln His Pro Trp Xaa
        35                  40                  45
Met Lys Asp Xaa Xaa Glu His Gly Gly Gln Glu Thr Phe Gln Gly Xaa
        50                  55                  60
Met Lys Lys Tyr Met Ala Arg Xaa Lys Trp Gln Lys Thr Gly Asn Ala
65                  70                  75                  80
Val Arg Ala Ile Gly Arg Leu Ser Ser Met Ala Met Ile Ser Gly Leu
                85                  90                  95
Ser Gly Arg Lys Ser Ser Thr Gly Ser Pro Thr Ser Pro Leu Asn Ala
                100                 105                 110
Glu Lys Leu Glu Ser Glu Asp Val Ser Gln Ala Phe Leu Glu Ala Val
        115                 120                 125
Ala Glu Glu Lys Pro His Val Lys Pro Tyr Phe Ser Lys Thr Ile Arg
        130                 135                 140
Asp Leu Glu Val Val Glu Gly Ser Ala Ala Arg Phe Asp Cys Lys Ile
145                 150                 155                 160
Glu Gly Tyr Pro Asp Pro Glu Val Xaa Trp Phe Lys Asp Asp Gln Ser
                165                 170                 175
Ile Arg Glu Ser Arg His Phe Gln Ile Asp Tyr Asp Glu Asp Gly Asn
                180                 185                 190
Cys Ser Leu Ile Ile Ser Asp Val Cys Gly Asp Asp Asp Ala Lys Tyr
                195                 200                 205
Thr Cys Lys Ala Val Asn Ser Leu Gly Glu Ala Thr Cys Thr Ala Glu
        210                 215                 220
Leu Ile Val Glu Thr Met Glu Glu Gly Glu Gly Glu Gly Glu Glu Glu
225                 230                 235                 240
Glu Glu
```

```
        <210> 1166
        <211> 221
5       <212> PRT
        <213> Homo sapiens


        <400> 1166
     Ser Gly Lys Met Ala Lys Val Ser Glu Leu Tyr Asp Val Thr Trp Glu
10   1               5                   10                  15
     Glu Met Arg Asp Lys Met Arg Lys Trp Arg Glu Glu Asn Ser Arg Asn
                 20                  25                  30
     Ser Glu Gln Ile Val Glu Val Gly Glu Glu Leu Ile Asn Glu Tyr Ala
                 35                  40                  45
15   Ser Lys Leu Gly Asp Asp Ile Trp Ile Ile Tyr Glu Gln Val Met Ile
           50                  55                  60
     Ala Ala Leu Asp Tyr Gly Arg Asp Asp Leu Ala Leu Phe Cys Leu Gln
     65                  70                  75                  80
     Glu Leu Arg Arg Gln Phe Pro Gly Ser His Arg Val Lys Arg Leu Thr
20                   85                  90                  95
     Gly Met Arg Phe Glu Ala Met Glu Arg Tyr Asp Asp Ala Ile Gln Leu
                 100                 105                 110
     Tyr Asp Arg Ile Leu Gln Glu Asp Pro Thr Asn Thr Ala Ala Arg Lys
                 115                 120                 125
25   Arg Lys Ile Ala Ile Arg Lys Ala Gln Gly Lys Asn Val Glu Ala Ile
           130                 135                 140
     Arg Glu Leu Asn Glu Tyr Leu Glu Gln Phe Val Gly Asp Gln Glu Ala
     145                 150                 155                 160
     Trp His Glu Leu Ala Glu Leu Tyr Ile Asn Glu His Asp Tyr Ala Lys
30                   165                 170                 175
     Ala Ala Phe Cys Leu Glu Glu Leu Met Met Thr Asn Pro His Asn His
                 180                 185                 190
     Leu Tyr Cys Gln Gln Tyr Ala Glu Val Lys Tyr Thr Gln Xaa Gly Leu
                 195                 200                 205
35   Glu Asn Leu Asp Phe Gln Glu Ser Ile Leu His Arg His
           210                 215                 220


        <210> 1167
        <211> 167
40      <212> PRT
        <213> Homo sapiens


        <400> 1167
     His Val Leu Ser Leu Ser Phe Pro Ile Arg Arg Asp Asp Gly Ser Trp
45   1               5                   10                  15
     Glu Val Ile Glu Gly Tyr Arg Ala Gln His Ser Gln His Arg Thr Pro
                 20                  25                  30
     Cys Lys Gly Gly Ile Arg Tyr Ser Thr Asp Val Ser Val Asp Glu Val
                 35                  40                  45
50   Lys Ala Leu Ala Ser Leu Met Thr Tyr Lys Cys Ala Val Val Asp Val
           50                  55                  60
     Pro Phe Gly Gly Ala Lys Ala Gly Val Lys Ile Asn Pro Lys Asn Tyr
     65                  70                  75                  80
     Thr Asp Asn Glu Leu Glu Lys Ile Thr Arg Arg Phe Thr Met Glu Leu
55                   85                  90                  95
     Ala Lys Lys Gly Phe Ile Gly Pro Gly Ile Asp Val Pro Ala Pro Asp
                 100                 105                 110
     Met Ser Thr Gly Glu Arg Glu Met Ser Trp Ile Ala Asp Thr Tyr Ala
                 115                 120                 125
60   Ser Thr Ile Gly His Tyr Asp Ile Asn Ala His Ala Cys Val Thr Gly
           130                 135                 140
     Lys Pro Ile Ser Gln Gly Gly Ile His Gly Arg Ile Ser Ala Thr Gly
     145                 150                 155                 160
```

```
Pro Trp Cys Leu Pro Trp Asp
                    165

        <210> 1168
        <211> 112
        <212> PRT
        <213> Homo sapiens


        <400> 1168
Ile Phe Ile Ser Xaa Xaa Xaa Pro Tyr Phe Xaa Asn Lys Asp Leu Ser
1               5                   10              15
Xaa Gln Xaa Tyr Xaa Ile Xaa Xaa Gly Asp Xaa Ser Ser Thr Ser Xaa
            20                  25              30
Xaa Leu Xaa Trp Xaa Ser Ala Xaa Asp Leu Thr Xaa Arg Xaa Xaa Xaa
        35                  40              45
Pro Ala Glu Xaa Ser His Gln Gly Xaa Gly Ile His Glu Glu Pro Glu
    50              55              60
Ser Phe Phe Thr Trp Phe Thr Asp His Ser Asp Ala Gly Ala Asp Xaa
65              70              75              80
Leu Xaa Glu Val Xaa Lys Asp Asp Ile Trp Pro Asn Pro Leu Gln Xaa
        85              90              95
Tyr Leu Val Pro Asp Met Asp Asp Glu Xaa Xaa Xaa Gly Glu Arg Arg
            100             105             110


        <210> 1169
        <211> 67
        <212> PRT
        <213> Homo sapiens


        <400> 1169
Thr His Ile Arg Tyr Asn Lys Ile Gly Val Val Lys Thr Met Ser Cys
1               5                   10              15
Gly Asn Glu Phe Val Glu Thr Leu Lys Lys Ile Gly Tyr Pro Lys Ala
            20                  25              30
Asp Asn Leu Asn Gly Glu Asp Phe Asp Trp Leu Phe Glu Gly Val Glu
        35                  40              45
Xaa Glu Ser Phe Leu Lys Trp Phe Cys Gly Asn Val Asn Glu Gln Asn
    50              55              60
Val Leu Ser
65


        <210> 1170
        <211> 208
        <212> PRT
        <213> Homo sapiens


        <400> 1170
Glu Ser Ser Gly Thr Tyr Ile Val Asn Leu Glu Asn Leu Val Gln Glu
1               5                   10              15
Leu Ser Gln Ser Asn Met Met Leu Xaa Lys Gln Leu Glu Met Leu Thr
            20                  25              30
Asp Pro Ser Val Ser Gln Gln Ile Asn Pro Arg Asn Thr Ile Asp Thr
        35                  40              45
Lys Asp Tyr Ser Thr His Arg Leu Tyr Gln Val Leu Glu Gly Glu Asn
    50              55              60
Lys Lys Lys Glu Leu Phe Leu Thr His Gly Asn Leu Glu Glu Val Ala
65              70              75              80
Glu Lys Leu Lys Gln Asn Ile Ser Leu Val Gln Asp Gln Leu Ala Val
        85              90              95
Ser Ala Gln Glu His Ser Phe Phe Leu Ser Lys Arg Asn Lys Asp Val
            100             105             110
Asp Met Leu Cys Asp Thr Leu Tyr Gln Gly Gly Asn Gln Leu Leu Leu
            115             120             125
```

```
        Ser Asp Gln Glu Leu Thr Glu Gln Phe His Lys Val Glu Ser Gln Leu
            130             135             140
        Asn Lys Leu Asn His Leu Leu Thr Asp Ile Leu Ala Asp Val Lys Thr
        145             150             155             160
  5     Lys Arg Lys Thr Leu Ala Asn Asn Lys Leu His Gln Met Glu Arg Glu
                    165             170             175
        Phe Tyr Val Tyr Phe Leu Lys Asp Glu Asp Tyr Leu Lys Asp Ile Val
                    180             185             190
        Glu Asn Leu Glu Thr Gln Ser Lys Ile Lys Ala Val Ser Leu Glu Asp
 10         195             200             205
```

```
            <210> 1171
            <211> 227
            <212> PRT
 15         <213> Homo sapiens


            <400> 1171
        Arg Leu Tyr Asn Ser Ala Val Val Thr Met Pro Val Val Arg Lys Ile
        1           5               10              15
 20     Phe Arg Arg Arg Arg Gly Asp Ser Glu Ser Glu Glu Asp Glu Gln Asp
                    20              25              30
        Ser Glu Glu Val Arg Leu Lys Leu Glu Glu Thr Arg Glu Val Gln Asn
                    35              40              45
        Leu Arg Lys Arg Pro Asn Gly Val Ser Ala Val Ala Leu Leu Val Gly
 25         50              55              60
        Glu Lys Val Gln Glu Glu Thr Thr Leu Val Asp Asp Pro Phe Gln Met
        65              70              75              80
        Lys Thr Gly Gly Met Val Asp Met Lys Lys Leu Lys Glu Arg Gly Lys
                    85              90              95
 30     Asp Lys Ile Ser Glu Glu Glu Asp Leu His Leu Gly Thr Ser Phe Ser
                    100             105             110
        Ala Glu Thr Asn Arg Arg Asp Glu Asp Ala Asp Met Met Lys Tyr Ile
                    115             120             125
        Glu Thr Glu Leu Lys Lys Arg Lys Gly Ile Val Glu His Glu Glu Gln
 35         130             135             140
        Lys Val Lys Pro Lys Asn Ala Glu Asp Cys Leu Tyr Glu Leu Pro Glu
        145             150             155             160
        Asn Ile Arg Val Ser Ser Ala Lys Lys Thr Glu Glu Met Leu Ser Asn
                    165             170             175
 40     Gln Met Leu Ser Gly Ile Pro Glu Val Asp Leu Gly Ile Asp Ala Lys
                    180             185             190
        Ile Lys Asn Ile Ile Xaa Thr Glu Asp Ala Lys Ala Arg Leu Leu Ala
                    195             200             205
        Glu Xaa Arg Thr Arg Lys Lys Asp Arg Glu Thr Ser Leu Cys Leu Pro
 45         210             215             220
        Thr Trp Leu
        225


            <210> 1172
 50         <211> 209
            <212> PRT
            <213> Homo sapiens


            <400> 1172
 55     Glu Arg Leu Arg Asp Ile Tyr Arg Pro Pro Xaa Lys Phe Gly Ser Lys
        1           5               10              15
        Asn Leu Ser Gln Ser Asn Met Met Leu Xaa Lys Gln Leu Glu Met Leu
                    20              25              30
        Thr Asp Pro Ser Val Ser Xaa Gln Ile Asn Pro Arg Asn Thr Ile Asp
 60         35              40              45
        Thr Lys Asp Tyr Ser Thr His Arg Leu Tyr Gln Val Leu Glu Gly Glu
            50              55              60
        Asn Lys Lys Lys Glu Leu Phe Leu Thr His Gly Asn Leu Glu Glu Val
```

```
        65                    70                    75                    80
        Ala Glu Lys Leu Lys Gln Asn Ile Ser Leu Val Gln Asp Gln Leu Ala
                        85                    90                    95
        Val Ser Ala Gln Glu His Ser Phe Phe Leu Ser Lys Arg Asn Lys Asp
                        100                   105                   110
        Val Asp Met Leu Cys Asp Thr Leu Tyr Gln Gly Gly Asn Gln Leu Leu
                        115                   120                   125
        Leu Ser Asp Gln Glu Leu Thr Glu Gln Phe His Lys Val Glu Ser Gln
                    130                   135                   140
        Leu Asn Lys Leu Asn His Leu Leu Thr Asp Ile Leu Ala Asp Val Lys
        145                   150                   155                   160
        Thr Lys Arg Lys Thr Leu Ala Asn Asn Lys Leu His Gln Met Glu Arg
                        165                   170                   175
        Glu Phe Tyr Val Tyr Phe Leu Lys Asp Glu Asp Tyr Leu Lys Asp Ile
                    180                   185                   190
        Val Glu Asn Leu Glu Thr Gln Ser Lys Ile Lys Ala Val Ser Leu Glu
                        195                   200                   205
        Asp


        <210> 1173
        <211> 178
        <212> PRT
        <213> Homo sapiens


        <400> 1173
        Ile Val Glu Arg Glu Ser Gly His Tyr Val Glu Met His Ala Arg Tyr
        1               5                     10                    15
        Ile Gly Thr Thr Val Phe Val Arg Gln Val Gly Arg Tyr Leu Thr Leu
                        20                    25                    30
        Ala Ile Arg Met Pro Glu Asp Leu Ala Met Ser Tyr Glu Glu Ser Gln
                    35                    40                    45
        Asp Leu Gln Leu Cys Val Asn Gly Cys Pro Leu Ser Glu Arg Ile Asp
                50                    55                    60
        Asp Gly Gln Gly Gln Val Ser Ala Ile Leu Gly His Ser Leu Pro Arg
        65                    70                    75                    80
        Thr Ser Leu Val Gln Ala Trp Pro Gly Tyr Thr Leu Glu Thr Ala Asn
                        85                    90                    95
        Thr Gln Cys His Glu Lys Met Pro Val Lys Asp Ile Tyr Phe Gln Ser
                        100                   105                   110
        Cys Val Phe Asp Leu Leu Thr Thr Gly Asp Ala Asn Phe Thr Ala Ala
                    115                   120                   125
        Ala His Ser Ala Leu Glu Asp Val Glu Ala Leu His Pro Arg Lys Glu
                130                   135                   140
        Arg Trp His Ile Phe Pro Ser Ser Gly Asn Gly Thr Pro Arg Gly Gly
        145                   150                   155                   160
        Ser Asp Leu Ser Val Ser Leu Gly Leu Thr Cys Leu Ile Leu Ile Val
                        165                   170                   175
        Phe Leu


        <210> 1174
        <211> 166
        <212> PRT
        <213> Homo sapiens


        <400> 1174
        Thr Asp Arg Gln Ile Thr Ala Ser Thr Gly Ser Pro Ile Ala Thr Ala
        1               5                     10                    15
        Gly Glu Asn Val Pro Ala Phe Leu Pro Trp Val Gln Gly Leu His Ile
                        20                    25                    30
        Leu Gln Gly Thr Val Gly Cys Gly Ser Lys Val Gly Ile Thr Ser Gly
                    35                    40                    45
```

459

Glu Gln Val Glu Asp Thr Gly Leu Glu Ile Asp Val Leu His Trp His
    50   55   60
Leu Leu Met Ala Leu Ser Val Gly Ser Leu Gln Cys Val Ala Arg Pro
65   70   75   80
Gly Leu His Gln Gly Gly Ala Arg Gln Ala Val Ser Gln Asp Gly Arg
                85   90   95
His Leu Ala Leu Pro Val Ile Asp Ala Phe Thr Gln Gly Ala Ala Val
                100   105   110
His Ala Gln Leu Gln Val Leu Ala Leu Leu Val Gly His Gly Gln Val
            115   120   125
Phe Arg His Thr Asp Gly Lys Gly Gln Val Ala Thr His Leu Pro His
    130   135   140
Lys His Cys Gly Pro Tyr Ile Ala Gly Val His Leu His Ile Val Ala
145   150   155   160
Thr Leu Pro Phe His Asp
                165

        <210> 1175
        <211> 118
        <212> PRT
        <213> Homo sapiens

        <400> 1175
Ala Gly Arg Arg His Arg Thr Gly Asn Arg Cys Pro Ser Leu Ala Ser
1   5   10   15
Ser His Gly Ile Glu Cys Trp Gln Ser Pro Val Cys Ser Gln Ala Arg
                20   25   30
Pro Ala Pro Arg Arg Cys Glu Ala Gly Cys Val Pro Gly Trp Gln Thr
            35   40   45
Pro Gly Pro Ala Arg His Arg Cys Val His Ser Gly Gly Ser Arg Ser
    50   55   60
Arg Thr Ala Ala Gly Pro Gly Ser Pro Arg Arg Thr Trp Pro Gly Leu
65   70   75   80
Gln Ala Tyr Gly Trp Gln Gly Ser Gly Ser Asp Pro Pro Ala Ala Gln
                85   90   95
Thr Leu Trp Ser Leu Tyr Ser Gly Arg Ala Ser Pro His Ser Gly His
                100   105   110
Ser Pro Phe Pro Arg Tyr
            115

        <210> 1176
        <211> 82
        <212> PRT
        <213> Homo sapiens

        <400> 1176
Lys Lys Cys Cys Leu His Met Leu Val Xaa Glu Thr Leu Ala Arg Arg
1   5   10   15
Ile Ser Gly His Thr Asn Met Trp Ile Gly Xaa Ser Cys Ser Glu Xaa
                20   25   30
Ser Trp Gly Ser Leu Lys Arg Gly Lys Xaa Trp Phe Ser Xaa Met Leu
            35   40   45
His Met Ala Xaa Phe Lys Arg Leu Lys Thr Phe Phe Cys Pro Leu Cys
    50   55   60
Xaa Ala Trp Lys Leu Pro Pro Xaa Gln Cys Val Glu Xaa Leu Gln Arg
65   70   75   80
Asn Leu

        <210> 1177
        <211> 44
        <212> PRT
        <213> Homo sapiens

```
        <400> 1177
     Thr Gln Thr Tyr Xaa Asn Ser Ser Ile Xaa Phe Thr Ser Leu Ser Ser
     1               5               10              15
  5  Ile Cys Gln Lys Xaa Gly Val Ser Pro Asp Phe Phe Xaa Leu Gly Pro
                 20              25              30
     Pro Xaa Xaa Lys Gln Ile Phe Thr Met Leu Leu Asn
             35              40

 10         <210> 1178
            <211> 216
            <212> PRT
            <213> Homo sapiens

 15         <400> 1178
     Leu Ser Glu Lys Phe Phe Lys Ala Ala Ser Asn Cys Gly Ile Val Glu
     1               5               10              15
     Ser Ile Leu Asn Trp Val Lys Phe Lys Ala Gln Thr Gln Leu Asn Lys
                 20              25              30
 20  Lys Cys Ser Ser Val Lys Tyr Ser Lys Ile Lys Gly Ile Pro Lys Leu
                 35              40              45
     Asp Asp Ala Asn Asp Ala Gly Gly Lys His Ser Leu Glu Cys Thr Leu
             50              55              60
     Ile Leu Thr Glu Gly Asp Ser Ala Lys Ser Leu Ala Val Ser Gly Leu
 25  65              70              75              80
     Gly Val Ile Gly Arg Asp Arg Tyr Gly Val Phe Pro Leu Arg Gly Lys
                     85              90              95
     Ile Leu Asn Val Arg Glu Ala Ser His Lys Gln Ile Met Glu Asn Ala
                 100             105             110
 30  Glu Ile Asn Asn Ile Ile Lys Ile Val Gly Leu Gln Tyr Lys Lys Ser
                 115             120             125
     Tyr Asp Asp Ala Glu Ser Leu Lys Thr Leu Arg Tyr Gly Lys Ile Met
             130             135             140
     Ile Met Thr Asp Gln Asp Gln Asp Gly Ser His Ile Lys Gly Leu Leu
 35  145             150             155             160
     Ile Asn Phe Ile His His Asn Trp Pro Ser Leu Leu Lys His Gly Phe
                 165             170             175
     Leu Glu Glu Phe Ile Thr Pro Ile Xaa Lys Ala Ser Lys Asn Lys Gln
                 180             185             190
     Glu Leu Ser Phe Tyr Ser Ile Pro Glu Phe Ala Asn Gly Lys Asn Ile
 40              195             200             205
     Xaa Lys Thr Arg Lys Pro Gly Lys
             210             215

 45         <210> 1179
            <211> 110
            <212> PRT
            <213> Homo sapiens

 50         <400> 1179
     Lys Pro Phe Ser Xaa Pro Val Leu Lys Pro Xaa Xaa Thr Xaa Lys Thr
     1               5               10              15
     Lys Xaa Arg Xaa Lys Gly Cys Xaa Leu Xaa Leu Gly Ile Gln Asn Leu
                 20              25              30
 55  Ala Phe Gln Xaa Lys Pro Xaa Pro Pro Lys Gly Lys Gly Xaa Gly Ala
                 35              40              45
     Xaa Lys Arg Lys Ala Xaa Gly Phe Glu Asn Glu Gly Asp Tyr Asn Pro
             50              55              60
     Gly Arg Xaa Xaa Ser Lys Xaa Xaa Ser Lys Lys Pro Lys Lys Thr Xaa
 60  65              70              75              80
     Phe Asp Gln Asp Ser Asp Val Asp Ile Phe Pro Ser Xaa Phe Pro Asn
                 85              90              95
     Glu Xaa Pro Phe Leu Pro Arg Thr Gly Xaa Val Xaa Xaa Lys
```

461

                    100   105   110

        <210> 1180
        <211> 176
        <212> PRT
        <213> Homo sapiens

        <400> 1180
    Val Gly Arg Tyr Leu Thr Leu Ala Ile Arg Met Pro Glu Asp Leu Ala
    1   5   10   15
    Met Ser Tyr Glu Glu Ser Gln Asp Leu Gln Leu Cys Val Asn Gly Cys
                20   25   30
    Pro Leu Ser Glu Arg Ile Asp Asp Gly Gln Gly Gln Val Ser Ala Ile
                35   40   45
    Leu Gly His Ser Leu Pro Arg Thr Ser Leu Val Gln Ala Trp Pro Gly
                50   55   60
    Tyr Thr Leu Glu Thr Ala Asn Thr Gln Cys His Glu Lys Met Pro Val
    65   70   75   80
    Lys Asp Ile Tyr Phe Gln Ser Cys Val Phe Asp Leu Leu Thr Thr Gly
    20   85   90   95
    Asp Ala Asn Phe Thr Ala Ala Ala His Ser Ala Leu Glu Asp Val Glu
                100   105   110
    Ala Leu His Pro Arg Lys Glu Arg Trp His Ile Phe Pro Ser Ser Gly
                115   120   125
    Asn Gly Thr Pro Arg Gly Gly Ser Asp Leu Ser Val Lys Ser Arg Thr
                130   135   140
    His Leu Leu Asp Pro Tyr Arg Val Phe Val Gly Val Xaa Phe Xaa Phe
    145   150   155   160
    Gly Phe Leu Phe Phe Xaa Tyr Asn Lys Ile Leu Lys Tyr Ile Leu Xaa
                165   170   175

        <210> 1181
        <211> 87
        <212> PRT
        <213> Homo sapiens

        <400> 1181
    Lys Lys Cys Cys Leu His Met Leu Val Xaa Glu Thr Leu Ala Arg Arg
    1   5   10   15
    Ile Ser Gly His Thr Asn Met Trp Ile Gly Tyr Ser Cys Ser Glu Xaa
                20   25   30
    Ser Trp Gly Ser Leu Lys Arg Gly Lys His Trp Phe Ser Gln Met Leu
                35   40   45
    His Met Ala Xaa Phe Lys Arg Leu Lys Thr Phe Phe Cys Pro Leu Cys
    50   55   60
    Xaa Ala Trp Lys Leu Pro Pro Pro His Ser Val Ser Ser Leu Cys Lys
    65   70   75   80
    Glu Thr Phe Arg Cys Gly Ser
                85

        <210> 1182
        <211> 85
        <212> PRT
        <213> Homo sapiens

        <400> 1182
    Phe Arg Ser Xaa Val Lys Ile Cys Phe Xaa Ile Trp Xaa Ala Gln Xaa
    1   5   10   15
    Arg Lys Lys Ser Gly Xaa Tyr Pro Pro Phe Phe Val Gln Lys Tyr Glu
                20   25   30
    Ser Glu Val Lys Xaa Ile Glu Glu Phe Xaa Lys Asp Leu Gly Xaa Glu
                35   40   45
    Cys Val Ser Leu Ile Xaa Asn Leu Cys Ser Phe Gln Xaa Lys Tyr His

                                    462

```
            50                  55                    60
         Xaa Xaa Leu Leu Asp Ser Gly Lys Arg Arg Leu Gly Tyr Phe Ala Ile
         65                      70                    75                    80
         Ser Phe Ser Trp Lys
  5                  .       85


                 <210> 1183
                 <211> 83
                 <212> PRT
 10              <213> Homo sapiens


                 <400> 1183
         Asn Gly Gly Asn Thr Gly Phe His Arg Cys Ser Thr Trp Leu Xaa Leu
         1                   5                     10                    15
 15      Lys Asp Ser Lys Leu Phe Phe Val Leu Phe Val Xaa Leu Gly Ser Ser
                         20                    25                    30
         Pro Pro Pro Thr Val Cys Arg Val Phe Ala Lys Lys Pro Leu Asp Val
                     35                    40                    45
         Val His Arg Tyr Met Asn Thr Tyr Leu Cys Lys Thr Val Ser Val Gln
 20          50                    55                    60
         Cys Val Asn Thr Leu Asn Tyr Tyr Ala Arg Lys Ile Lys Leu His Thr
         65                      70                    75                    80
         Leu Leu Trp


 25
                 <210> 1184
                 <211> 229
                 <212> PRT
                 <213> Homo sapiens
 30
                 <400> 1184
         Glu Ile Thr Glu Leu Lys Val Lys Glu Phe Glu Asn Ile Lys Leu Gln
         1                   5                     10                    15
         Leu Gln Glu Asn His Glu Asp Glu Val Lys Lys Val Lys Ala Glu Val
 35                      20                    25                    30
         Glu Asp Leu Lys Tyr Xaa Leu Asp Gln Ser Gln Lys Glu Ser Gln Cys
                     35                    40                    45
         Leu Lys Ser Glu Leu Gln Ala Gln Lys Glu Ala Asn Ser Arg Ala Pro
                 50                    55                    60
 40      Thr Thr Thr Met Arg Asn Leu Val Glu Arg Leu Lys Ser Gln Leu Ala
         65                      70                    75                    80
         Leu Lys Glu Lys Gln Gln Lys Ala Leu Ser Arg Ala Leu Leu Glu Leu
                         85                    90                    95
         Arg Ala Glu Met Thr Ala Ala Ala Glu Glu Arg Ile Ile Ser Ala Thr
 45                      100                   105                   110
         Ser Gln Lys Glu Ala His Leu Asn Val Gln Gln Ile Val Asp Arg His
                         115                   120                   125
         Thr Arg Glu Leu Lys Thr Gln Val Glu Asp Leu Asn Glu Asn Leu Leu
                     130                   135                   140
 50      Lys Leu Lys Glu Ala Leu Lys Thr Ser Lys Asn Arg Glu Asn Ser Leu
         145                   150                   155                   160
         Thr Asp Asn Leu Asn Asp Leu Asn Asn Glu Leu Gln Lys Lys Gln Lys
                         165                   170                   175
         Ala Tyr Asn Lys Ile Leu Arg Glu Lys Glu Glu Ile Asp Gln Glu Asn
 55                      180                   185                   190
         Asp Glu Leu Lys Arg Gln Ile Lys Arg Leu Thr Xaa Gly Leu Gln Gly
                     195                   200                   205
         Lys Pro Leu Thr Asp Asn Lys Pro Arg Ser Asn Trp Arg Asn Ser Xaa
                 210                   215                   220
 60      Gly Arg Leu Lys Thr
         225


                 <210> 1185
```

```
        <211> 182
        <212> PRT
        <213> Homo sapiens

        <400> 1185
Cys Lys Xaa Gly Pro Gln Xaa Gly Xaa Gln Lys Gly Phe Pro Asn Pro
1               5               10              15
Met Lys Pro Leu Xaa Thr Arg Leu Arg Xaa Leu Asn His Val Xaa Xaa
        20              25              30
Gly Val Glu Thr Glu Gln Ala Phe Lys Gly Ser Phe Gln Val Phe Arg
        35              40              45
Xaa Ala Asn His Pro Ala Asp Lys Glu Lys Ala Glu Leu Ile His Gln
        50              55              60
Ile Glu Ala Thr Lys Asp Gln Ser Gly Ala Glu Ser Xaa Ile Pro Asp
65              70              75              80
Ala Asp Gln Leu Lys Glu Lys Ile Lys Asp Leu Glu Xaa Gln Leu Lys
                85              90              95
Met Ser Asp Xaa Glu Lys Gln His Leu Lys Glu Glu Ile Lys Lys Leu
        100             105             110
Lys Lys Glu Leu Glu Asn Phe Asp Pro Ser Phe Phe Glu Glu Ile Glu
        115             120             125
Asp Xaa Lys Tyr Asn Tyr Lys Glu Glu Val Lys Lys Asn Ile Xaa Leu
        130             135             140
Glu Glu Lys Val Lys Lys Leu Ser Glu Gln Leu Gly Val Glu Leu Thr
145             150             155             160
Ser Pro Val Ala Ala Xaa Glu Glu Phe Glu Asp Glu Glu Glu Ser Pro
                165             170             175
Val Asn Phe Pro Ile Tyr
                180


        <210> 1186
        <211> 118
        <212> PRT
        <213> Homo sapiens

        <400> 1186
Arg Glu Leu Glu Pro Ala Glu Phe Glu Thr Met Leu Leu Phe Cys Pro
1               5               10              15
Gly Cys Gly Asn Gly Leu Ile Val Glu Glu Gly Gln Arg Cys His Arg
        20              25              30
Phe Ala Cys Asn Thr Cys Pro Tyr Val His Asn Ile Thr Arg Lys Val
        35              40              45
Thr Asn Arg Lys Tyr Pro Lys Leu Lys Glu Val Asp Asp Val Leu Gly
        50              55              60
Gly Ala Ala Ala Trp Glu Asn Val Asp Ser Thr Ala Glu Ser Cys Pro
65              70              75              80
Lys Cys Glu His Pro Arg Ala Tyr Phe Met Gln Leu Gln Thr Arg Ser
                85              90              95
Ala Asp Glu Pro Met Thr Thr Phe Tyr Lys Cys Cys Asn Ala Gln Cys
        100             105             110
Gly His Arg Trp Arg Asp
        115


        <210> 1187
        <211> 84
        <212> PRT
        <213> Homo sapiens

        <400> 1187
Cys Asn Thr Cys Pro Leu Arg Ala Gln His His Xaa Gln Gly Asn Lys
1               5               10              15
Ser Xaa Asp Pro Lys Leu Lys Glu Val Asp Xaa Val Leu Gly Gly Ala
        20              25              30
```

```
       Ala Ala Trp Glu Asn Val Asp Ser Thr Ala Glu Ser Cys Pro Lys Cys
               35                  40                  45
       Glu His Pro Arg Ala Tyr Phe Met Gln Leu Gln Thr Arg Ser Ala Asp
               50                  55                  60
   5   Glu Pro Met Thr Xaa Phe Tyr Lys Cys Cys Asn Ala Gln Cys Gly His
       65                  70                  75                  80
       Arg Trp Arg Asp


  10           <210> 1188
               <211> 190
               <212> PRT
               <213> Homo sapiens

  15           <400> 1188
       Leu Gln Asp Ile Lys Glu Lys Ile Ser Lys Gly Glu Tyr Gly Asn Ala
        1               5                  10                  15
       Gly Ile Met Ala Glu Val Glu Glu Leu Arg Lys Arg Val Leu Asp Met
               20                  25                  30
  20   Glu Gly Lys Asp Glu Glu Leu Ile Lys Met Glu Glu Gln Cys Arg Asp
               35                  40                  45
       Leu Asn Lys Arg Leu Glu Arg Glu Thr Leu Gln Ser Lys Asp Phe Lys
               50                  55                  60
       Leu Glu Val Glu Lys Leu Ser Lys Arg Ile Met Ala Leu Glu Lys Leu
  25   65                  70                  75                  80
       Glu Asp Ala Phe Asn Lys Ser Lys Gln Glu Cys Tyr Ser Leu Lys Cys
                       85                  90                  95
       Asn Leu Glu Lys Glu Arg Met Thr Thr Lys Gln Leu Ser Gln Glu Leu
                      100                 105                 110
  30   Glu Ser Leu Lys Val Arg Ile Lys Glu Leu Glu Ala Ile Glu Ser Arg
               115                 120                 125
       Leu Glu Lys Thr Glu Phe Thr Leu Lys Glu Asp Leu Thr Lys Leu Lys
               130                 135                 140
       Thr Leu Thr Val Met Phe Val Asp Glu Arg Lys Thr Met Ser Glu Lys
  35   145                 150                 155                 160
       Leu Lys Lys Thr Glu Asp Lys Leu Gln Ala Ala Ser Ser Gln Leu Gln
                      165                 170                 175
       Val Glu Gln Asn Lys Val Thr Thr Val Thr Glu Lys Val Asn
                      180                 185                 190
  40
               <210> 1189
               <211> 214
               <212> PRT
               <213> Homo sapiens
  45
               <400> 1189
       Val Arg Val Asp Ser Thr Ala Lys Val Ala Glu Ile Glu His Ala Glu
        1               5                  10                  15
       Lys Glu Lys Met Lys Glu Lys Val Glu Arg Ile Leu Lys His Gly Ile
  50           20                  25                  30
       Asn Cys Phe Ile Asn Arg Gln Leu Ile Tyr Asn Tyr Pro Glu Gln Leu
               35                  40                  45
       Phe Gly Ala Ala Gly Val Met Ala Ile Glu His Ala Asp Phe Ala Gly
               50                  55                  60
  55   Val Glu Arg Leu Ala Leu Val Thr Gly Gly Glu Ile Ala Ser Thr Phe
       65                  70                  75                  80
       Asp His Pro Glu Leu Val Lys Leu Gly Ser Cys Lys Leu Ile Glu Glu
                       85                  90                  95
       Val Met Ile Gly Glu Asp Lys Leu Ile His Phe Ser Gly Val Ala Leu
  60                 100                 105                 110
       Gly Glu Ala Cys Thr Ile Val Leu Arg Gly Ala Thr Gln Gln Ile Leu
               115                 120                 125
       Asp Glu Ala Glu Arg Ser Leu His Asp Ala Leu Cys Val Leu Ala Gln
```

465

```
        130                    135                    140
Thr Val Lys Asp Ser Arg Thr Val Tyr Gly Gly Gly Cys Ser Glu Met
145                    150                    155                    160
Leu Met Ala His Ala Val Thr Gln Leu Ala Asn Arg Thr Pro Gly Lys
                   165                    170                    175
Glu Ala Val Ala Met Glu Ser Tyr Ala Lys Ala Leu Arg Met Leu Pro
                180                    185                    190
Thr Ile Ile Ala Asp Asn Ala Ala Met Thr Val Gln Thr Trp Trp His
                195                    200                    205
Ser Ser Arg Leu Leu Gln
            210
```

```
        <210> 1190
        <211> 245
        <212> PRT
        <213> Homo sapiens


        <400> 1190
Ser Arg Thr Arg Thr Ser Asp Arg Leu Asn Arg Ile Ala Asn Gln Val
1               5                    10                     15
Ala Ile Gln Arg Lys Lys Gln Phe Val Glu Arg Ala His Ser Tyr Trp
            20                    25                     30
Leu Leu Lys Arg Leu Ser Arg Asn Gly Ala Pro Leu Leu Arg Arg Leu
            35                    40                     45
Gln Ser Ser Leu Gln Ser Gln Arg Ser Ser Gln Gln Arg Glu Asn Asp
        50                    55                     60
Glu Glu Met Lys Ala Ala Lys Glu Lys Leu Lys Tyr Trp Gln Arg Leu
65                    70                    75                     80
Arg His Asp Leu Glu Arg Ala Arg Leu Leu Ile Glu Leu Leu Arg Lys
                85                    90                     95
Arg Glu Lys Leu Lys Arg Glu Gln Val Lys Val Glu Gln Val Ala Met
            100                    105                    110
Glu Leu Arg Leu Thr Pro Leu Thr Val Leu Leu Arg Ser Val Leu Asp
            115                    120                    125
Gln Leu Gln Asp Lys Asp Pro Ala Arg Ile Phe Ala Gln Pro Val Ser
        130                    135                    140
Leu Lys Glu Val Pro Asp Tyr Leu Asp His Ile Lys His Pro Met Asp
145                    150                    155                    160
Phe Ala Thr Met Arg Lys Arg Leu Glu Ala Gln Gly Tyr Lys Asn Leu
                165                    170                    175
His Glu Phe Glu Glu Asp Phe Asp Leu Ile Ile Asp Asn Cys Met Lys
                180                    185                    190
Tyr Asn Ala Arg Asp Thr Val Phe Tyr Lys Xaa Arg Gly Glu Ala Cys
            195                    200                    205
Ala Ile Lys Glu Val Leu Phe Leu Xaa Gln Ala Pro Xaa Arg Xaa Gly
        210                    215                    220
Thr Ser Ile Arg Leu Gly Lys Arg Xaa Ser Gly Ile Ala Pro Cys Leu
225                    230                    235                    240
Lys Pro Gly Leu Leu
                245
```

```
        <210> 1191
        <211> 190
        <212> PRT
        <213> Homo sapiens


        <400> 1191
Pro Glu Ala Glu Thr Thr Gly Cys Gly Ala Ala Gly Arg Asp Thr Cys
1               5                    10                     15
Ser Pro Phe Asp Pro Ile Met Ser Arg Gly Ser Ile Glu Ile Pro Leu
            20                    25                     30
Arg Asp Thr Asp Glu Val Ile Glu Leu Asp Phe Asp Gln Leu Pro Glu
            35                    40                     45
```

```
Gly Asp Glu Val Ile Ser Ile Leu Lys Gln Glu His Thr Gln Leu His
    50              55              60
Ile Trp Ile Ala Leu Ala Leu Glu Tyr Tyr Lys Gln Gly Lys Thr Glu
65              70              75                      80
Glu Phe Val Lys Leu Leu Glu Ala Ala Arg Ile Asp Gly Asn Leu Asp
            85              90              95
Tyr Arg Asp His Glu Lys Asp Gln Met Thr Cys Leu Asp Thr Leu Ala
        100             105             110
Ala Tyr Tyr Val Gln Gln Ala Arg Lys Glu Lys Asn Lys Asp Asn Lys
    115             120             125
Lys Asp Leu Ile Thr Gln Ala Thr Leu Leu Tyr Thr Met Ala Asp Lys
    130             135             140
Ile Ile Met Tyr Asp Gln Asn His Leu Leu Gly Arg Ala Cys Phe Cys
145             150             155             160
Leu Leu Glu Gly Asp Lys Met Asp Gln Ala Asp Ala Gln Phe His Phe
            165             170             175
Val Leu Asn Gln Ser Xaa Asn Asn Ile Xaa Ser Pro Ser Trp
            180             185             190
```

```
        <210> 1192
        <211> 114
        <212> PRT
        <213> Homo sapiens


        <400> 1192
Ala Glu Ala Gly Ser Ser Gln Gln Met Val Leu Ile Ile His Asn Asn
1           5               10              15
Phe Ile Gly His Cys Ile Gln Gln Gly Gly Leu Cys Asn Lys Ile Leu
        20              25              30
Phe Ile Val Leu Ile Leu Phe Phe Pro Ser Leu Leu Tyr Ile Ile Arg
        35              40              45
Cys Gln Cys Ile Gln Ala Ser His Leu Val Phe Phe Met Val Ser Ile
    50              55              60
Val Gln Ile Ala Ile Tyr Thr Cys Cys Phe Gln Gln Phe Tyr Lys Leu
65              70              75                      80
Phe Cys Phe Ser Leu Leu Val Val Phe Gln Arg Gln Ser Asn Pro Tyr
            85              90              95
Val Gln Leu Cys Val Phe Leu Phe Gln Asn Thr Asp Asn Phe Ile Ser
            100             105             110
Leu Arg
```

```
        <210> 1193
        <211> 40
        <212> PRT
        <213> Homo sapiens


        <400> 1193
Lys Arg Phe Leu Thr Asn Glu Gly Ser Gly Xaa Lys Xaa Leu Glu Met
1           5               10              15
Asn Xaa Asn Gln Arg Asp Pro Pro Pro Lys Xaa Ser Asp Lys Gly Ser
        20              25              30
Glu His Gly Ser Asp Asp Ser Asp
        35              40
```

```
        <210> 1194
        <211> 196
        <212> PRT
        <213> Homo sapiens


        <400> 1194
Glu Arg Xaa Leu Glu Arg Ala Arg Glu Arg Asp Lys Glu Arg Glu Arg
1           5               10              15
```

```
      Gln Arg Asp Trp Glu Asp Lys Asp Lys Gly Arg Asp Asp Arg Arg Glu
                  20              25              30
      Lys Arg Glu Glu Ile Arg Glu Asp Arg Asn Pro Arg Asp Gly His Asp
                  35              40              45
 5    Glu Arg Lys Ser Lys Lys Arg Tyr Arg Asn Glu Gly Ser Pro Ser Pro
              50              55              60
      Arg Gln Ser Pro Lys Arg Arg Arg Glu His Ser Pro Asp Ser Asp Ala
      65              70              75              80
      Tyr Asn Ser Gly Asp Asp Lys Asn Glu Lys His Arg Leu Leu Ser Gln
10                  85              90              95
      Val Val Arg Pro Gln Glu Ser Arg Ser Leu Ser Pro Ser His Leu Thr
                  100             105             110
      Glu Asp Arg Gln Gly Arg Trp Lys Glu Glu Asp Arg Lys Pro Glu Arg
                  115             120             125
15    Lys Glu Ser Ser Arg Arg Tyr Glu Glu Gln Glu Leu Lys Glu Lys Val
              130             135             140
      Ser Ser Val Asp Lys Gln Arg Glu Gln Thr Glu Ile Leu Glu Ser Ser
      145             150             155             160
      Arg Met Arg Ala Gln Asp Ile Ile Gly His His Gln Ser Glu Asp Arg
20                  165             170             175
      Glu Thr Ser Asp Arg Ala Leu Met Lys Thr Arg Arg Lys Pro Lys Phe
                  180             185             190
      Lys Glu Xaa Ile
                  195
25
              <210> 1195
              <211> 194
              <212> PRT
              <213> Homo sapiens
30
              <400> 1195
      Glu Lys Ser Glu Lys Lys Xaa Ile Lys Xaa Glu Xaa Pro Lys Gly Leu
      1               5               10              15
      Gly Xaa Xaa Xaa Xaa Lys Ala Glu Met Xaa Xaa Xaa Lys Ser Xaa Lys
35                  20              25              30
      Arg Ser Glu Lys Ile Gly Ile Gln Glu Met Xaa Met Met Lys Glu Asn
                  35              40              45
      Gln Arg Ser Gly Tyr Arg Asn Glu Gly Xaa Pro Ser Pro Arg Gln Ser
              50              55              60
40    Pro Lys Arg Arg Gly Glu His Xaa Pro Asp Ser Asp Ala Xaa Xaa Xaa
      65              70              75              80
      Gly Asp Asp Lys Asn Glu Lys Pro Arg Xaa Leu Ser Gln Val Val Xaa
                  85              90              95
      Xaa Gln Xaa Phe Xaa Phe Phe Ser Pro Ser Pro Leu Xaa Xaa Asp Arg
45                  100             105             110
      Gln Gly Arg Trp Lys Xaa Glu Xaa Cys Xaa Pro Glu Arg Lys Xaa Ser
              115             120             125
      Ser Arg Xaa Tyr Glu Glu Gln Glu Leu Lys Xaa Lys Val Phe Phe Val
              130             135             140
50    Asp Lys Gln Arg Glu Gln Thr Glu Ile Leu Glu Ser Ser Arg Met Xaa
      145             150             155             160
      Xaa Gln Xaa Ile Ile Xaa Pro Pro Gln Phe Glu Asp Arg Xaa Thr Xaa
                  165             170             175
      Asp Xaa Ala His Asp Glu Asn Lys Lys Lys Ala Lys Ile Gln Lys Xaa
55                  180             185             190
      Xaa Xaa


              <210> 1196
60            <211> 232
              <212> PRT
              <213> Homo sapiens
```

```
        <400> 1196
Gln Asp Leu Tyr Ser Ala Arg Asp Leu Gln Gly Leu Thr Val Glu His
1               5                   10                  15
Ala Ile Asp Ser Phe Arg Glu Gly Glu Thr Met Ile Leu Thr Leu Lys
            20                  25                  30
Asp Lys Gly Val Leu Gln Glu Glu Glu Asp Val Leu Val Asn Val Asn
        35                  40                  45
Leu Val Asp Lys Glu Arg Ala Glu Lys Asn Val Glu Leu Arg Lys Lys
        50                  55                  60
Lys Pro Asp Tyr Leu Pro Tyr Ala Glu Asp Glu Ser Val Asp Asp Leu
65                  70                  75                  80
Ala Gln Gln Lys Pro Arg Ser Ile Leu Ser Lys Tyr Asp Glu Glu Leu
                85                  90                  95
Glu Gly Glu Arg Pro His Ser Phe Arg Leu Glu Gln Gly Gly Thr Ala
                100                 105                 110
Asp Gly Leu Arg Glu Arg Glu Leu Glu Glu Ile Arg Ala Lys Leu Arg
            115                 120                 125
Leu Gln Ala Gln Ser Leu Ser Thr Val Gly Pro Arg Leu Ala Ser Glu
            130                 135                 140
Tyr Leu Thr Pro Glu Glu Met Val Thr Phe Lys Lys Thr Lys Arg Arg
145                 150                 155                 160
Val Lys Lys Ile Arg Lys Lys Glu Lys Glu Val Val Val Arg Ala Asp
                165                 170                 175
Asp Leu Leu Pro Leu Gly Asp Gln Thr Gln Asp Gly Asp Phe Gly Ser
            180                 185                 190
Xaa Thr Ala Gly Asp Xaa Val Pro Pro Gln Cys Xaa Glu Trp Arg Lys
        195                 200                 205
Lys Xaa Glu Pro Cys Ala Leu Thr Pro Gly Val Gly Arg His Pro Asn
        210                 215                 220
Xaa Arg Thr Leu Asp Ile Ile Asp
225                 230

        <210> 1197
        <211> 165
        <212> PRT
        <213> Homo sapiens


        <400> 1197
Ile Gly Gly Trp Gln Leu Pro Cys Ser Cys Val Arg Thr Lys Gly Cys
1               5                   10                  15
Trp Arg Pro Gln Ser Glu Gly Gly Pro Gly Lys Ala Pro Asn Lys Ser
            20                  25                  30
Leu Pro Ser Ala Val Xaa Cys Ile Glu Asp Lys Met Ala Ile Asp Asp
            35                  40                  45
Lys Tyr Ser Arg Arg Glu Glu Tyr Arg Gly Phe Thr Gln Asp Phe Lys
        50                  55                  60
Glu Lys Asp Gly Tyr Lys Pro Asp Val Lys Ile Glu Tyr Val Asp Glu
65                  70                  75                  80
Thr Gly Arg Lys Leu Thr Pro Lys Glu Ala Phe Arg Gln Leu Ser His
            85                  90                  95
Arg Phe His Gly Lys Gly Ser Gly Lys Met Lys Thr Glu Arg Arg Met
            100                 105                 110
Lys Lys Leu Asp Glu Glu Ala Leu Leu Lys Lys Met Ser Ser Ser Asp
        115                 120                 125
Thr Pro Leu Gly Thr Val Ala Leu Leu Gln Glu Lys Gln Lys Ala Gln
        130                 135                 140
Lys Thr Pro Tyr Ile Val Leu Ser Gly Ser Gly Lys Ser Met Asn Ala
145                 150                 155                 160
Asn Thr Ile Thr Lys
                165

        <210> 1198
        <211> 206
```

```
<212> PRT
<213> Homo sapiens


<400> 1198
Lys Met Ala Lys Val Ser Glu Leu Tyr Asp Val Thr Trp Glu Glu Met
1               5                   10                  15
Arg Asp Lys Met Arg Lys Trp Arg Glu Glu Asn Ser Arg Asn Ser Glu
            20                  25                  30
Gln Ile Val Glu Val Gly Glu Glu Leu Ile Asn Glu Tyr Ala Ser Lys
            35                  40                  45
Leu Gly Asp Asp Ile Trp Ile Ile Tyr Glu Gln Val Met Ile Ala Ala
        50                  55                  60
Leu Asp Tyr Gly Arg Asp Asp Leu Ala Leu Phe Cys Leu Gln Glu Leu
65                  70                  75                  80
Arg Arg Gln Phe Pro Gly Ser His Arg Val Lys Arg Leu Thr Gly Met
                85                  90                  95
Arg Phe Glu Ala Met Glu Arg Tyr Asp Asp Ala Ile Gln Leu Tyr Asp
            100                 105                 110
Arg Ile Leu Gln Glu Asp Pro Thr Asn Thr Ala Ala Arg Lys Arg Lys
        115                 120                 125
Ile Ala Ile Arg Lys Ala Gln Gly Lys Asn Val Glu Ala Ile Arg Glu
        130                 135                 140
Leu Asn Glu Tyr Leu Glu Gln Phe Val Gly Asp Gln Glu Ala Trp His
145                 150                 155                 160
Glu Leu Ala Glu Leu Tyr Ile Asn Glu His Asp Tyr Ala Lys Ala Ala
                165                 170                 175
Phe Cys Leu Glu Glu Leu Met Met Thr Asn Pro His Asn His Leu Tyr
            180                 185                 190
Cys Gln Gln Tyr Ala Glu Val Lys Tyr Thr Gln Xaa Trp Thr
            195                 200                 205
```

```
<210> 1199
<211> 62
<212> PRT
<213> Homo sapiens


<400> 1199
Cys Gln Gln Tyr Ala Glu Val Lys Tyr Thr Gln Gly Xaa Leu Glu Thr
1               5                   10                  15
Leu Glu Leu Ser Arg Lys Tyr Phe Ala Gln Ala Leu Lys Leu Asn Asn
            20                  25                  30
Arg Asn Met Arg Ala Leu Phe Gly Leu Tyr Met Ser Ala Ser His Ile
            35                  40                  45
Ala Xaa Asn Pro Lys Ala Ser Ala Lys Thr Lys Lys Ala Thr
        50                  55                  60
```

```
<210> 1200
<211> 147
<212> PRT
<213> Homo sapiens


<400> 1200
Ser Pro Cys Arg Ser Pro His Arg Trp Val Asn Ser Thr Cys Arg Ser
1               5                   10                  15
Thr Leu Lys Thr Arg Arg Leu Trp Tyr Asn Thr Pro His Thr His Ser
            20                  25                  30
Gln Pro Pro Asp Lys Thr His Ser Leu Pro Leu Pro Cys Thr Ile Pro
            35                  40                  45
Met Arg His Asn Tyr Asn Lys Leu His Leu Pro Thr Thr Asn Arg Pro
        50                  55                  60
Lys Ile Ala His Cys Ile Leu Phe Asn Gln Pro His Ser Pro Arg Ser
65                  70                  75                  80
Asn Ser His Ser His Pro Asn Pro Leu Lys Leu His Arg Arg Ser His
```

```
                          85                    90                         95
       Ser His Asn Arg Pro Arg Thr Tyr Ile Leu Ile Thr Ile Leu Pro Ser
                          100                   105                        110
       Lys Leu Lys Leu Arg Thr His Ser Gln Ser His His Asn Pro Leu Ser
5                         115                   120                        125
       Arg Thr Ser Asn Ser Thr Pro Thr Asn Ser Phe Leu Met Thr Ser Ser
                          130                   135                        140
       Lys Pro Arg
       145

10
               <210> 1201
               <211> 71
               <212> PRT
               <213> Homo sapiens
15
               <400> 1201
       Ser Asn Ile Thr Leu Leu Leu Thr Gly Leu Asn Ile Leu Val Thr Ala
       1               5                    10                       15
       Leu Tyr Ser Leu Tyr Ile Phe Thr Thr Thr Gln Trp Gly Ser Leu Thr
20                      20                   25                       30
       His His Ile Asn Asn Ile Lys Pro Ser Phe Thr Arg Glu Asn Thr Leu
                       35                   40                       45
       Met Phe Ile His Leu Ser Pro Ile Leu Leu Leu Ser Leu Asn Pro Asp
                   50                   55                       60
25     Ile Ile Thr Gly Phe Ser Ser
       65                   70


               <210> 1202
               <211> 93
30             <212> PRT
               <213> Homo sapiens


               <400> 1202
       Ala His His Ser Leu Ile Glu Asn Asn Arg Asn Gln Ile Ile Gln Ala
35     1               5                    10                       15
       Leu Leu Ile Thr Ile Leu Leu Gly Leu Tyr Phe Thr Leu Leu Gln Ala
                       20                   25                       30
       Ser Glu Tyr Phe Glu Ser Pro Phe Thr Ile Ser Asp Gly Ile Tyr Gly
                   35                   40                       45
40     Ser Thr Phe Phe Val Ala Thr Gly Phe His Gly Leu His Val Ile Ile
                   50                   55                       60
       Gly Ser Thr Phe Leu Thr Ile Cys Phe Ile Arg Gln Leu Ile Phe His
       65                   70                   75                       80
       Phe Thr Ser Lys His His Phe Gly Phe Glu Ala Ala Ala
45                      85                   90


               <210> 1203
               <211> 159
               <212> PRT
50             <213> Homo sapiens


               <400> 1203
       Val Ser Ser Arg Tyr Xaa Pro Asn Glu Gly Ser His His Xaa Phe Leu
       1               5                    10                       15
55     Lys Xaa Gln Arg Lys Ser Lys Ser Xaa Lys Ile Ile Phe Asn Tyr Xaa
                       20                   25                       30
       Xaa Asp Ala Xaa Arg Glu Xaa Thr Leu Val Ser Glu Xaa Ala Gln Arg
                   35                   40                       45
       Ala Gln Arg Glu Xaa Gln Cys Gln Met Lys Glu Ala Glu His Met Tyr
60     50                   55                   60
       Gln Asn Glu Gln Asp Asn Val Asn Lys Xaa Xaa Gln Xaa Xaa Ser
       65                   70                   75                       80
       Leu Asp Gln Lys Leu Phe Gln Leu Gln Ser Lys Asn Met Trp Leu Xaa
```

                                471

```
                        85                      90                      95
        Gln Gln Leu Val Xaa Xaa His Lys Lys Xaa Ala Xaa Lys Ser Lys Ile
                        100                     105                     110
        Xaa Ile Asp Ile His Phe Leu Glu Arg Lys Xaa Xaa His His Xaa Leu
                        115                     120                     125
        Lys Glu Lys Asn Glu Glu Ile Phe Asn Ser Asn Xaa His Leu Lys Xaa
                        130                     135                     140
        Arg Ile Tyr Gln Tyr Glu Lys Glu Lys Ala Glu Xaa Glu Asn Ser
        145                     150                     155
```

```
        <210> 1204
        <211> 53
        <212> PRT
        <213> Homo sapiens

        <400> 1204
        Ser Gln Pro Tyr Thr Pro Ser Thr Tyr Leu Pro Gln His Asn Gly Ala
        1               5                   10                  15
        His Ser Pro His Ile Asn Asn Ile Lys Pro Ser Phe Thr Arg Glu Asn
                        20                  25                  30
        Thr Leu Met Ser Tyr Thr Tyr Pro His Ser Leu Tyr Ser Ser Thr Arg
                    35                  40                  45
        Ile Leu Pro Gly Phe
                    50
```

```
        <210> 1205
        <211> 71
        <212> PRT
        <213> Homo sapiens

        <400> 1205
        Ser Asn Ile Thr Leu Leu Leu Thr Gly Leu Asn Ile Leu Val Thr Ala
        1               5                   10                  15
        Leu Tyr Ser Leu Tyr Ile Phe Thr Thr Thr Gln Trp Gly Ser Leu Thr
                        20                  25                  30
        His His Ile Asn Asn Ile Lys Pro Ser Phe Thr Arg Glu Asn Thr Leu
                    35                  40                  45
        Met Phe Ile His Leu Ser Pro Ile Leu Leu Leu Ser Leu Asn Pro Asp
                    50                  55                  60
        Ile Ile Thr Gly Phe Ser Ser
        65                  70
```

```
        <210> 1206
        <211> 279
        <212> PRT
        <213> Homo sapiens

        <400> 1206
        Glu Ile His Arg Lys Leu Ser Glu Ala Thr Arg Glu Leu Gln Asn Ala
        1               5                   10                  15
        Pro Asp Ala Ile Pro Glu Ser Gly Val Glu Pro Pro Ala Leu Asp Thr
                        20                  25                  30
        Ala Trp Val Glu Ala Thr Arg Lys Lys Ala Leu Leu Lys Leu Glu Lys
                    35                  40                  45
        Leu Asp Thr Asp Leu Lys Asn Tyr Lys Gly Asn Ser Ile Lys Glu Ser
                    50                  55                  60
        Ile Arg Arg Gly His Asp Asp Leu Gly Asp His Tyr Leu Asp Cys Gly
        65                  70                  75                  80
        Asp Leu Ser Asn Ala Leu Lys Cys Tyr Ser Arg Ala Arg Asp Tyr Cys
        60                  85                  90                  95
        Thr Ser Ala Lys His Val Ile Asn Met Cys Leu Asn Val Ile Lys Val
                        100                     105                     110
        Ser Val Tyr Leu Gln Asn Trp Ser His Val Leu Ser Tyr Val Ser Lys
```

472

```
                115                    120                    125
      Ala Glu Ser Thr Pro Glu Ile Ala Glu Gln Arg Gly Glu Arg Asp Ser
                130                    135                    140
      Gln Thr Gln Ala Ile Leu Thr Lys Leu Lys Cys Ala Ala Gly Leu Ala
 5    145                    150                    155                160
      Glu Leu Ala Ala Arg Lys Tyr Lys Gln Ala Ala Lys Cys Leu Leu Leu
                    165                    170                    175
      Ala Ser Phe Asp His Cys Asp Phe Pro Glu Leu Leu Ser Pro Ser Asn
                180                    185                    190
10    Val Ala Ile Tyr Gly Gly Leu Cys Ala Leu Ala Thr Phe Asp Arg Gln
                195                    200                    205
      Glu Leu Gln Arg Asn Val Ile Phe Ser Ser Ser Phe Lys Leu Phe Leu
                210                    215                    220
      Glu Leu Glu Pro Xaa Val Arg Asp Ile Ile Phe Lys Phe Tyr Glu Xaa
15    225                    230                    235                240
      Lys Tyr Ala Ser Cys Leu Lys Asn Ala Gly Pro Arg Met Lys Gly Gln
                    245                    250                    255
      Pro Cys Ser Leu Asp Ile Val Xaa Trp Ala Pro Ile Val Lys Asp Pro
                    260                    265                    270
20    Cys Thr Pro Gln Ile Ser Lys
                    275


                <210> 1207
                <211> 178
25              <212> PRT
                <213> Homo sapiens


                <400> 1207
      Glu Ile His Arg Lys Leu Ser Glu Ala Thr Arg Glu Leu Gln Asn Ala
30    1                   5                      10                     15
      Pro Asp Ala Ile Pro Glu Ser Gly Val Glu Pro Pro Ala Leu Asp Thr
                    20                     25                     30
      Ala Trp Val Glu Ala Thr Arg Lys Lys Ala Leu Leu Lys Leu Glu Lys
                    35                     40                     45
35    Leu Asp Thr Asp Leu Lys Asn Tyr Lys Gly Asn Ser Ile Lys Glu Ser
                50                     55                     60
      Ile Arg Arg Gly His Asp Asp Leu Gly Asp His Tyr Leu Asp Cys Gly
      65                     70                     75                 80
      Asp Leu Ser Asn Ala Leu Lys Cys Tyr Ser Arg Ala Arg Asp Tyr Cys
40                       85                     90                     95
      Thr Ser Ala Lys His Val Ile Asn Met Cys Leu Asn Val Ile Lys Val
                    100                    105                    110
      Ser Val Tyr Leu Gln Asn Trp Ser His Val Leu Ser Tyr Val Ser Lys
                    115                    120                    125
45    Ala Glu Ser Thr Pro Glu Ile Ala Glu Gln Arg Gly Glu Arg Asp Ser
                130                    135                    140
      Gln Thr Gln Ala Ile Leu Thr Lys Leu Lys Cys Ala Ala Ser Leu Ala
      145                    150                    155                160
      Lys Leu Xaa Ala Arg Xaa Tyr Lys Gln Ala Cys Gln Val Leu Cys Trp
50                       165                    170                    175
      Leu Leu


                <210> 1208
55              <211> 120
                <212> PRT
                <213> Homo sapiens


                <400> 1208
60    Ser Phe Gln Tyr Phe Lys Pro Leu Arg Phe Lys Pro Thr Met His Xaa
      1                   5                      10                     15
      Met Gly Gln Pro Phe Lys Tyr His Gly Ala Xaa Leu Xaa Gly Arg Val
                    20                     25                     30
```

```
     Asp Ala Val Asn Leu Glu Gly Val Asp Gln Cys Xaa Cys Gly Leu Thr
              35                      40              45
     Gln Ala Arg Ser Tyr Thr Ala Xaa Xaa Val Asp Gln Arg Ser Thr Thr
              50                      55              60
5    Phe Glu Lys Xaa Leu Leu Met Gly Lys Glu Phe Gln Arg Arg Ala Lys
     65               70                       75                   80
     Ala Met Met Leu Arg Ala Ala Val Leu Arg Asn Gln Ile His Val Lys
                  85                      90                   95
     Ser Pro Pro Arg Glu Gly Ser Gln Gly Glu Leu Thr Pro Ala Asn Ser
10                100                 105                  110
     Gln Ser Arg Met Ser Thr Asn Met
                  115                 120
```

```
             <210> 1209
15           <211> 182
             <212> PRT
             <213> Homo sapiens


             <400> 1209
20   Gly Val Glu Pro Pro Ala Leu Asp Thr Ala Trp Val Glu Ala Thr Arg
     1                5                   10                  15
     Lys Lys Ala Leu Leu Lys Leu Glu Lys Leu Asp Thr Asp Leu Lys Asn
                  20                  25                  30
     Tyr Lys Gly Asn Ser Ile Lys Glu Ser Ile Arg Arg Gly His Asp Asp
25            35                  40                  45
     Leu Gly Asp His Tyr Leu Asp Cys Gly Asp Leu Ser Asn Ala Leu Lys
              50                  55                  60
     Cys Tyr Ser Arg Ala Arg Asp Tyr Cys Thr Ser Ala Lys His Val Ile
     65               70                       75                   80
30   Asn Met Cys Leu Asn Val Ile Lys Val Ser Val Tyr Leu Gln Asn Trp
                  85                      90                   95
     Ser His Val Leu Ser Tyr Val Ser Lys Ala Glu Ser Thr Pro Glu Ile
                  100                 105                  110
     Ala Glu Gln Arg Gly Glu Arg Asp Ser Gln Thr Gln Ala Ile Leu Thr
35            115                 120                  125
     Lys Leu Lys Cys Ala Ala Gly Leu Ala Glu Leu Ala Ala Arg Lys Tyr
              130                 135                  140
     Lys Gln Ala Ala Lys Cys Leu Leu Leu Ala Ser Phe Asp His Xaa Asp
     145                  150                      155                  160
40   Phe Pro Glu Leu Leu Ser Pro Asn Asn Val Ala Ile Tyr Gly Gly Leu
                  165                 170                  175
     Cys Ala Leu Ala Thr Phe
                  180
```

```
             <210> 1210
45           <211> 239
             <212> PRT
             <213> Homo sapiens


             <400> 1210
50   Lys Lys Ala Leu Leu Lys Leu Glu Lys Leu Asp Thr Asp Leu Lys Asn
     1                5                   10                  15
     Tyr Lys Gly Asn Ser Ile Lys Glu Ser Ile Arg Arg Gly His Asp Asp
                  20                  25                  30
     Leu Gly Asp His Tyr Leu Asp Cys Gly Asp Leu Ser Asn Ala Leu Lys
55            35                  40                  45
     Cys Tyr Ser Arg Ala Arg Asp Tyr Cys Thr Ser Ala Lys His Val Ile
              50                  55                  60
     Asn Met Cys Leu Asn Val Ile Lys Val Ser Val Tyr Leu Gln Asn Trp
60   65               70                       75                   80
     Ser His Val Leu Ser Tyr Val Ser Lys Ala Glu Ser Thr Pro Glu Ile
                  85                      90                   95
     Ala Glu Arg Gly Glu Arg Asp Ser Gln Thr Gln Ala Ile Leu Thr Lys
```

```
                     100                    105                    110
      Leu Lys Cys Ala Ala Gly Leu Ala Glu Leu Ala Ala Arg Lys Tyr Lys
             115                    120                    125
      Gln Ala Ala Lys Cys Leu Leu Leu Ala Ser Phe Asp His Cys Asp Phe
5            130                    135                    140
      Pro Glu Leu Leu Ser Pro Ser Asn Val Ala Ile Tyr Gly Gly Leu Cys
      145                    150                    155                    160
      Ala Leu Ala Thr Phe Asp Arg Gln Glu Leu Gln Arg Asn Val Ile Phe
                     165                    170                    175
10    Ser Ser Ser Phe Lys Leu Phe Leu Glu Leu Glu Pro Xaa Val Arg Asp
                     180                    185                    190
      Ile Ile Phe Lys Phe Tyr Glu Xaa Lys Tyr Ala Ser Cys Leu Lys Asn
                     195                    200                    205
      Ala Gly Pro Arg Met Lys Gly Gln Pro Cys Ser Leu Asp Ile Val Xaa
15           210                    215                    220
      Trp Ala Pro Ile Val Lys Asp Pro Cys Thr Pro Gln Ile Ser Lys
      225                    230                    235


20           <210> 1211
             <211> 245
             <212> PRT
             <213> Homo sapiens


             <400> 1211
25    Lys Lys Ala Leu Leu Lys Leu Glu Lys Leu Asp Thr Asp Leu Lys Asn
      1                   5                    10                    15
      Tyr Lys Gly Asn Ser Ile Lys Glu Ser Ile Arg Arg Gly His Asp Asp
                     20                    25                    30
      Leu Gly Asp His Tyr Leu Asp Cys Gly Asp Leu Ser Asn Ala Leu Lys
30           35                    40                    45
      Cys Tyr Ser Arg Ala Arg Asp Tyr Cys Thr Ser Ala Lys His Val Ile
             50                    55                    60
      Asn Met Cys Leu Asn Val Ile Lys Val Ser Val Tyr Leu Gln Asn Trp
      65                    70                    75                    80
35    Ser His Val Leu Ser Tyr Val Ser Lys Ala Glu Ser Thr Pro Glu Ile
                     85                    90                    95
      Ala Glu Arg Gly Glu Arg Asp Ser Gln Thr Gln Ala Ile Leu Thr Lys
                     100                    105                    110
      Leu Lys Cys Ala Ala Gly Leu Ala Glu Leu Ala Ala Arg Lys Tyr Lys
40           115                    120                    125
      Gln Ala Ala Lys Cys Leu Leu Leu Ala Ser Phe Asp His Cys Asp Phe
             130                    135                    140
      Pro Glu Leu Leu Ser Pro Ser Asn Val Ala Ile Tyr Gly Gly Leu Cys
      145                    150                    155                    160
45    Ala Leu Ala Thr Phe Asp Arg Gln Glu Leu Gln Arg Asn Val Ile Phe
                     165                    170                    175
      Ser Ser Phe Phe Lys Leu Phe Leu Glu Leu Glu Pro Gln Xaa Arg Asp
                     180                    185                    190
      Ile Ile Phe Lys Phe Tyr Glu Xaa Gln Val Pro Leu Met Phe Xaa Arg
50           195                    200                    205
      Cys Leu Asp Glu Asn Glu Arg Thr Thr Leu Xaa Leu Asp Asn Val Xaa
             210                    215                    220
      Trp Pro Pro Leu Leu Xaa Thr Leu Tyr Asn Pro Lys Phe Arg Asn Arg
      225                    230                    235                    240
55    Xaa Pro Ser Phe Ser
                     245


             <210> 1212
             <211> 210
60           <212> PRT
             <213> Homo sapiens


             <400> 1212
```

```
      Ser Glu Met Ile Phe Ser Asp Met Asn Thr Val Ser Gly Ser Pro Lys
      1               5                   10              15
      Val His Pro Pro Asn Gly Thr Arg Phe Tyr Thr Phe Gln Glu Phe Ala
                  20                  25              30
  5   Ala Leu Thr Lys Glu Leu Asn Ala Cys Arg Glu Gln Leu Leu Glu Lys
                  35                  40                  45
      Glu Glu Glu Ile Ser Glu Leu Lys Ala Glu Arg Asn Asn Thr Arg Leu
          50                  55                  60
      Leu Leu Glu His Leu Glu Cys Leu Val Ser Arg His Glu Arg Ser Leu
 10   65                  70                  75                  80
      Arg Met Thr Val Val Lys Arg Gln Ala Gln Ser Pro Ser Gly Val Ser
                      85                  90                  95
      Ser Glu Val Glu Val Leu Lys Ala Leu Lys Ser Leu Phe Glu His His
                  100                 105                 110
 15   Lys Ala Leu Asp Glu Lys Val Arg Glu Arg Leu Arg Val Ser Leu Glu
                  115                 120                 125
      Arg Val Ser Ala Leu Glu Glu Glu Leu Ala Ala Ala Asn Gln Glu Ile
          130                 135                 140
      Val Ala Leu Arg Glu Gln Asn Val His Ile Gln Arg Lys Met Ala Ser
 20   145                 150                 155                 160
      Ser Glu Gly Ser Thr Glu Ser Glu His Leu Glu Gly Met Glu Pro Gly
                      165                 170                 175
      Gln Lys Val His Glu Lys Arg Leu Ser Asn Gly Ser Ile Asp Ser Thr
                  180                 185                 190
 25   Asp Glu Thr Ser Gln Ile Val Glu Leu Gln Glu Leu Leu Glu Lys Gln
                  195                 200                 205
      Asn Gln
          210


 30           <210> 1213
              <211> 97
              <212> PRT
              <213> Homo sapiens


 35           <400> 1213
      Ser Glu Met Ile Phe Ser Asp Met Asn Thr Val Ser Gly Ser Pro Lys
      1               5                   10              15
      Val His Pro Pro Asn Gly Thr Arg Phe Tyr Thr Phe Gln Glu Phe Ala
                  20                  25              30
 40   Ala Leu Thr Lys Glu Leu Asn Ala Cys Arg Glu Gln Leu Leu Glu Lys
                  35                  40                  45
      Glu Glu Glu Ile Ser Glu Leu Lys Ala Glu Arg Asn Asn Thr Arg Leu
          50                  55                  60
      Leu Leu Glu His Leu Glu Cys Leu Val Ser Arg His Glu Arg Ser Leu
 45   65                  70                  75                  80
      Arg Met Thr Val Val Lys Arg Gln Ala Gln Ser Pro Ser Gly Val Ser
                      85                  90                  95
      Lys


 50
              <210> 1214
              <211> 209
              <212> PRT
              <213> Homo sapiens
 55
              <400> 1214
      Glu Met Ile Phe Ser Asp Met Asn Thr Val Ser Gly Ser Pro Lys Val
      1               5                   10              15
      His Pro Pro Asn Gly Thr Arg Phe Tyr Thr Phe Gln Glu Phe Ala Ala
 60               20                  25              30
      Leu Thr Lys Glu Leu Asn Ala Cys Arg Glu Gln Leu Leu Glu Lys Glu
                  35                  40                  45
      Glu Glu Ile Ser Glu Leu Lys Ala Glu Arg Asn Asn Thr Arg Leu Leu
```

```
         50                    55                    60
     Leu Glu His Leu Glu Cys Leu Val Ser Arg His Glu Arg Ser Leu Arg
     65                   70                   75                    80
 5   Met Thr Val Val Lys Arg Gln Ala Gln Ser Pro Ser Gly Val Ser Ser
                     85                   90                   95
     Glu Val Glu Val Leu Lys Ala Leu Lys Ser Leu Phe Glu His His Lys
                     100                  105                  110
     Ala Leu Asp Glu Lys Val Arg Glu Arg Leu Arg Val Ser Leu Glu Arg
                     115                  120                  125
10   Val Ser Ala Leu Glu Glu Glu Leu Ala Ala Ala Asn Gln Glu Ile Val
                     130                  135                  140
     Ala Leu Arg Glu Gln Asn Val His Ile Gln Arg Lys Met Ala Ser Ser
     145                  150                  155                   160
     Glu Gly Ser Thr Glu Ser Glu His Leu Glu Gly Met Glu Pro Gly Gln
15                   165                  170                  175
     Lys Val His Glu Lys Arg Leu Ser Asn Gly Ser Ile Asp Ser Thr Asp
                     180                  185                  190
     Glu Thr Ser Gln Ile Val Glu Leu Gln Glu Leu Leu Glu Lys Gln Asn
                     195                  200                  205
20   Gln
```

```
         <210> 1215
         <211> 98
25       <212> PRT
         <213> Homo sapiens

         <400> 1215
     Gly Gly Met Asn Asp Leu Phe Phe Gln Glu Phe Ala Ala Leu Thr Lys
30   1               5                   10                   15
     Glu Leu Asn Ala Cys Arg Glu Gln Leu Leu Glu Lys Glu Glu Glu Ile
                     20                  25                   30
     Ser Glu Leu Lys Ala Glu Arg Asn Asn Thr Arg Leu Leu Leu Glu His
                 35                  40                   45
35   Leu Glu Cys Leu Val Ser Arg His Glu Arg Ser Leu Arg Met Thr Val
                 50                  55                   60
     Val Lys Arg Gln Ala Gln Ser Pro Ser Gly Val Ser Ser Glu Val Glu
     65                  70                  75                    80
     Val Leu Lys Ala Leu Lys Ser Leu Phe Glu Pro Thr Arg Pro Trp Met
40                   85                  90                   95
     Lys Xaa
```

```
         <210> 1216
45       <211> 214
         <212> PRT
         <213> Homo sapiens

         <400> 1216
50   Xaa Gln Arg Thr Asn Phe Xaa Leu Lys Xaa Ile Phe Ser Leu Pro Ser
     1               5                   10                   15
     Gly His Ser Asp Ala Gln Thr Leu Ala Met Met Leu Gln Glu Gln Leu
                     20                  25                   30
     Asp Ala Ile Asn Lys Glu Ile Arg Leu Ile Gln Glu Glu Lys Glu Ser
55               35                  40                   45
     Thr Glu Leu Arg Ala Glu Glu Ile Glu Asn Arg Val Ala Ser Val Ser
             50                  55                   60
     Leu Glu Gly Leu Asn Leu Ala Arg Val His Pro Gly Thr Ser Ile Thr
     65                  70                  75                    80
60   Ala Ser Val Thr Ala Ser Ser Leu Ala Ser Ser Ser Pro Pro Ser Gly
                     85                  90                   95
     His Ser Thr Pro Lys Leu Thr Pro Arg Ser Pro Ala Arg Glu Met Asp
                     100                 105                  110
```

```
Arg Met Gly Val Met Thr Leu Pro Ser Asp Xaa Arg Lys His Arg Arg
    115                 120             125
Lys Ile Ala Val Val Glu Glu Asp Gly Arg Glu Asp Lys Ala Thr Ile
    130             135             140
Lys Cys Glu Thr Ser Pro Pro Thr Pro Arg Ala Leu Arg Met Thr
145             150             155                 160
His Thr Leu Pro Ser Ser Tyr His Asn Asp Ala Arg Ser Ser Leu Ser
            165             170             175
Val Ser Leu Glu Pro Glu Ser Leu Gly Leu Gly Ser Ala Asn Ser Ser
            180             185             190
Gln Asp Ser Xaa His Lys Ala Pro Lys Lys Lys Gly Ile Lys Ser Ser
        195             200             205
Ile Gly Arg Leu Phe Gly
        210
```

```
        <210> 1217
        <211> 63
        <212> PRT
        <213> Homo sapiens

        <400> 1217
Leu Leu Leu Ile Arg Arg Trp Trp Pro Cys Val Asn Gln Asn Val His
1               5               10              15
Xaa Gln Arg Lys Met Ala Ser Ser Arg Gly Ile Xaa Gln Ser Gln Asn
        20              25              30
Xaa Phe Glu Gly Met Glu Pro Gly Thr Glu Ser Pro Xaa Lys Ser Val
        35              40              45
Xaa Pro Met Gly Phe Leu Asp Leu Thr Arg Xaa Lys Leu Val Gln
    50              55              60
```

```
        <210> 1218
        <211> 169
        <212> PRT
        <213> Homo sapiens

        <400> 1218
Arg Cys Glu Pro Phe Thr Met Lys Met Leu Lys Asp Ile Lys Glu Gly
1               5               10              15
Val Lys Gln Tyr Gly Ser Asn Ser Pro Tyr Ile Arg Thr Leu Leu Asp
        20              25              30
Ser Ile Ala His Gly Asn Arg Leu Thr Pro Tyr Asp Trp Glu Ile Leu
        35              40              45
Ala Lys Ser Ser Leu Ser Ser Ser Gln Tyr Leu Gln Phe Lys Thr Trp
    50              55              60
Trp Ile Asp Gly Val Gln Glu Gln Val Arg Lys Asn Gln Ala Thr Lys
65              70              75              80
Pro Thr Val Asn Ile Asp Ala Asp Gln Leu Leu Gly Thr Gly Pro Asn
            85              90              95
Trp Ser Thr Ile Asn Gln Gln Ser Val Met Gln Asn Glu Ala Ile Glu
        100             105             110
Gln Val Arg Ala Ile Cys Leu Arg Ala Trp Gly Lys Ile Gln Asp Pro
        115             120             125
Gly Thr Ala Phe Pro Ile Asn Ser Ile Arg Gln Gly Ser Lys Glu Pro
        130             135             140
Tyr Pro Ala Leu Trp Gln Asp Tyr Lys Met Leu Leu Lys Ser Leu Leu
145             150             155             160
Gln Met Thr Met Pro Glu Lys Leu Leu
                165
```

```
        <210> 1219
        <211> 224
        <212> PRT
        <213> Homo sapiens
```

```
            <400> 1219
      Trp Met Ile Arg Leu Asn Xaa Ala Xaa Leu Ile Trp Phe Xaa Gln Asn
       1           5                   10                  15
  5   Val Arg Lys Xaa Asn Phe Pro Ile Leu Tyr Xaa Ser Xaa Xaa Glu Pro
                   20                  25                  30
      His Leu Ile Tyr Gln Gly Pro Leu Xaa Lys Ala Asn Asp Gln Ala Asp
                   35                  40                  45
      Leu Leu Val Ser Ser Ala Phe Met Xaa Ala Gln Glu Leu His Ala Leu
 10        50                  55                  60
      Thr His Val Asn Ala Ile Gly Leu Lys Asn Lys Phe Asp Ile Thr Trp
      65                  70                  75                  80
      Lys Gln Pro Lys Asn Ile Val Gln His Cys Thr Gln Cys Gln Ile Leu
                   85                  90                  95
 15   His Leu Ala Thr Gln Glu Ala Arg Val Asn Pro Arg Gly Leu Cys Pro
                   100                 105                 110
      Asn Val Leu Trp Gln Met Asp Val Met His Val Pro Ser Phe Gly Lys
                   115                 120                 125
      Leu Ser Phe Val His Val Thr Val Asp Thr Tyr Ser His Phe Ile Trp
 20        130                 135                 140
      Ala Thr Cys Gln Thr Gly Glu Ser Thr Ser His Val Lys Arg His Leu
      145                 150                 155                 160
      Leu Ser Cys Phe Pro Val Met Gly Val Pro Glu Lys Val Lys Thr Asp
                   165                 170                 175
 25   Asn Gly Pro Gly Tyr Cys Ser Lys Ala Phe Gln Lys Xaa Leu Asn Gln
                   180                 185                 190
      Trp Lys Ile Thr His Thr Ile Gly Ile Leu Tyr Asn Ser Gln Gly Gln
                   195                 200                 205
      Ala Ile Ile Glu Arg Thr Asn Arg Thr Leu Lys Ala Gln Leu Val Lys
 30        210                 215                 220


            <210> 1220
            <211> 178
            <212> PRT
 35         <213> Homo sapiens


            <400> 1220
      Gln Pro Thr Ala Met Ala Ser Asn Ser Pro Ala Thr Gln Asp Ala Ala
       1           5                   10                  15
 40   Leu Tyr Pro Gln Pro Pro Thr Val Arg Leu Asn Pro Thr Ala Ser Arg
                   20                  25                  30
      Ser Gly Gln Gly Gly Ala Leu His Ala Val Ile Asp Glu Ala Arg Lys
                   35                  40                  45
      Gln Gly Asp Leu Glu Ala Trp Arg Phe Leu Val Ile Leu Gln Leu Val
 45        50                  55                  60
      Gln Ala Gly Glu Glu Thr Gln Val Gly Ala Pro Ala Arg Ala Glu Thr
      65                  70                  75                  80
      Arg Cys Glu Pro Phe Thr Met Lys Met Leu Lys Asp Ile Lys Glu Gly
                   85                  90                  95
 50   Val Lys Gln Tyr Gly Ser Asn Ser Pro Tyr Ile Arg Thr Leu Leu Asp
                   100                 105                 110
      Ser Ile Ala His Gly Asn Arg Leu Thr Pro Tyr Asp Trp Glu Ile Leu
                   115                 120                 125
      Ala Lys Ser Ser Phe His Pro Leu Ser Ile Tyr Ser Leu Lys Pro Gly
 55        130                 135                 140
      Gly Leu Met Glu Tyr Lys Glu Gln Val Arg Lys Asn Gln Ala Thr Asn
      145                 150                 155                 160
      Pro Cys Tyr Ile Asp Ala Asp Gln Leu Leu Gly Thr Gly Gln Ile Gly
                   165                 170                 175
 60   Ala His


            <210> 1221
```

```
        <211> 152
        <212> PRT
        <213> Homo sapiens

5       <400> 1221
    Lys Ile Asn Leu Ile Ser His Gly Asn Arg Gln Lys Ile Leu Tyr Asn
    1               5                   10              15
    Ile Ala Pro Ser Val Arg Phe Tyr Thr Trp Pro Leu Arg Arg Gln Glu
                20              25              30
10  Leu Ile Pro Glu Val Tyr Val Leu Met Cys Tyr Gly Lys Trp Met Ser
                35              40              45
    Cys Thr Val Pro Ser Phe Gly Lys Leu Ser Phe Val His Val Thr Val
            50              55              60
    Asp Thr Tyr Ser His Phe Ile Trp Ala Thr Cys Gln Thr Gly Glu Ser
15  65              70              75              80
    Thr Ser His Val Lys Arg His Leu Leu Ser Cys Phe Pro Val Met Gly
                85              90              95
    Val Pro Glu Lys Val Lys Thr Asp Asn Gly Pro Gly Tyr Cys Ser Lys
                100             105             110
20  Ala Phe Gln Lys Phe Leu Asn Gln Trp Lys Ile Thr His Thr Ile Gly
                115             120             125
    Ile Leu Tyr Asn Ser Gln Gly Gln Ala Ile Ile Glu Arg Thr Asn Arg
        130             135             140
    Thr Leu Lys Ala Gln Leu Val Lys
25  145             150


        <210> 1222
        <211> 231
        <212> PRT
30      <213> Homo sapiens


        <400> 1222
    Arg Glu Ser Pro Lys Tyr Val His Gly Gln Pro Cys Gly Lys Leu Val
    1               5                   10              15
35  Cys Leu Glu Glu Pro Arg Val Thr Met Gly Gln Thr Glu Ser Lys Tyr
                20              25              30
    Ala Ser Tyr Leu Ser Phe Ile Lys Ile Leu Leu Arg Arg Gly Gly Val
                35              40              45
    Arg Ala Ser Thr Glu Asn Leu Ile Thr Leu Phe Gln Thr Ile Glu Gln
40  50              55              60
    Phe Cys Pro Trp Phe Pro Glu Gln Gly Thr Leu Asp Leu Lys Asp Trp
    65              70              75              80
    Glu Lys Ile Gly Lys Glu Leu Lys Gln Ala Asn Arg Glu Gly Lys Ile
                85              90              95
45  Ile Pro Leu Thr Val Trp Asn Asp Trp Ala Ile Ile Lys Ala Thr Leu
                100             105             110
    Glu Pro Phe Gln Thr Gly Glu Asp Ile Val Ser Val Ser Asp Ala Pro
                115             120             125
    Lys Ser Cys Val Thr Asp Cys Glu Glu Glu Ala Gly Thr Glu Ser Gln
50  130             135             140
    Gln Gly Thr Glu Ser Ser His Cys Lys Tyr Val Ala Glu Ser Val Met
    145             150                 155             160
    Ala Gln Ser Thr Gln Asn Val Asp Tyr Ser Gln Leu Gln Glu Ile Ile
                165             170             175
    Tyr Pro Glu Ser Ser Lys Leu Gly Glu Gly Gly Pro Glu Ser Leu Gly
55              180             185             190
    Pro Ser Glu Pro Lys Pro Arg Ser Pro Ser Thr Pro Pro Ser Ala Val
            195             200             205
    Gln Met Pro Val His Ser Thr Ser Asn Arg Arg Leu Asp Lys Pro Lys
60  210             215             220
    Pro Pro Arg Glu Asn Gln Val
    225             230
```

```
<210> 1223
<211> 299
<212> PRT
<213> Homo sapiens

<400> 1223
Glu Glu Gly Ser Arg Gly Gly Arg Glu Gly Ala Gly Lys Met Val Val
1               5                   10                  15
Thr Arg Ser Ala Arg Ala Lys Ala Ser Ile Gln Ala Ala Ser Ala Glu
            20                  25                  30
Ser Ser Gly Gln Lys Ser Phe Ala Ala Asn Gly Ile Gln Ala His Pro
        35                  40                  45
Glu Ser Ser Thr Gly Ser Asp Ala Arg Thr Thr Ala Glu Ser Gln Thr
        50                  55                  60
Thr Gly Lys Gln Ser Leu Ile Pro Arg Thr Pro Lys Ala Arg Lys Arg
65                  70                  75                  80
Lys Ser Arg Thr Thr Gly Ser Leu Pro Lys Gly Thr Glu Pro Ser Thr
                85                  90                  95
Asp Gly Glu Thr Ser Glu Ala Glu Ser Asn Tyr Ser Val Ser Glu His
            100                 105                 110
His Asp Thr Ile Leu Arg Val Thr Arg Arg Arg Gln Ile Leu Ile Ala
            115                 120                 125
Cys Ser Pro Val Ser Ser Val Arg Lys Lys Pro Lys Val Thr Pro Thr
        130                 135                 140
Lys Glu Ser Tyr Thr Glu Glu Ile Val Ser Glu Ala Glu Ser His Val
145                 150                 155                 160
Ser Gly Ile Ser Arg Ile Val Leu Pro Thr Glu Lys Thr Thr Gly Ala
                165                 170                 175
Arg Arg Ser Lys Ala Lys Ser Leu Thr Asp Pro Ser Gln Glu Ser His
            180                 185                 190
Thr Glu Ala Ile Ser Asp Ala Glu Thr Ser Ser Ser Asp Ile Ser Phe
            195                 200                 205
Ser Gly Ile Ala Thr Arg Arg Thr Arg Ser Met Gln Arg Lys Leu Lys
        210                 215                 220
Ala Gln Thr Glu Lys Lys Asp Ser Lys Ile Val Pro Gly Asn Glu Lys
225                 230                 235                 240
Gln Ile Val Gly Thr Pro Val Asn Ser Glu Asp Ser Asp Thr Arg Gln
                245                 250                 255
Thr Ser His Leu Gln Ala Arg Ser Leu Ser Glu Ile Asn Lys Pro Asn
            260                 265                 270
Phe Tyr Asn Asn Asp Phe Asp Asp Asp Phe Ser His Arg Ser Ser Glu
        275                 280                 285
Asn Ile Leu Thr Val His Arg Thr Gly Gln Cys
        290                 295

<210> 1224
<211> 182
<212> PRT
<213> Homo sapiens

<400> 1224
Val Thr Arg Ser Ala Arg Ala Lys Ala Ser Ile Gln Ala Ala Ser Ala
1               5                   10                  15
Glu Ser Ser Gly Gln Lys Ser Phe Ala Ala Asn Gly Ile Gln Ala His
            20                  25                  30
Pro Glu Ser Ser Thr Gly Ser Asp Ala Arg Thr Thr Ala Glu Ser Gln
        35                  40                  45
Thr Thr Gly Lys Gln Ser Leu Ile Pro Arg Thr Pro Lys Ala Arg Lys
        50                  55                  60
Arg Lys Ser Arg Thr Thr Gly Ser Leu Pro Lys Gly Thr Glu Pro Ser
65                  70                  75                  80
Thr Asp Gly Glu Thr Ser Glu Ala Glu Ser Asn Tyr Ser Val Ser Glu
                85                  90                  95
```

481

```
His His Asp Thr Ile Leu Arg Val Thr Arg Arg Arg Gln Ile Leu Ile
        100                 105                 110
Ala Cys Ser Pro Val Ser Ser Val Arg Lys Lys Pro Lys Val Thr Pro
        115                 120                 125
Thr Lys Glu Ser Tyr Thr Glu Glu Ile Val Ser Glu Ala Glu Ser His
        130                 135                 140
Val Ser Gly Ile Ser Arg Ile Xaa Leu Pro Thr Glu Lys Thr Thr Gly
145                 150                 155                 160
Ala Arg Arg Ser Lys Xaa Lys Ser Leu Asp Arg Ser Asn Gln Glu Ser
                165                 170                 175
His Thr Arg Asn Tyr Ile
                180


        <210> 1225
        <211> 194
        <212> PRT
        <213> Homo sapiens


        <400> 1225
Ser Ile Ala Leu Gly Leu Arg Ile Xaa Gln Leu Gly Gly Leu Tyr Ile
1                   5                   10                  15
Asn Phe Xaa Ala Asp Lys Xaa Gln Phe Asn Lys Arg Thr Xaa Xaa Gln
        20                  25                  30
Xaa Lys Xaa Lys Lys Lys Asn Glu Phe Xaa Gln Lys Ala Val Ile Thr
        35                  40                  45
Pro Asp Phe Glu Lys Asn His Cys Val Xaa Pro Tyr Ser Glu Ser Lys
        50                  55                  60
Xaa Gln Leu Gln Lys Lys Arg Arg Lys Xaa Arg Gln Lys Pro Xaa Gly
65                  70                  75                  80
Asp Gly Trp Phe Gly Met Lys Ala Pro Glu Met Thr Asn Glu Leu Lys
                85                  90                  95
Asn Asp Xaa Lys Ala Xaa Lys Met Arg Ala Ser Met Asp Pro Lys Arg
        100                 105                 110
Phe Xaa Lys Lys Asn Asp Arg Asp Gly Phe Pro Lys Tyr Phe Gln Ile
        115                 120                 125
Gly Thr Ile Val Asp Asn Pro Ala Asp Xaa Tyr His Ser Xaa Ile Pro
        130                 135                 140
Lys Lys Gln Arg Lys Arg Thr Ile Val Glu Glu Leu Leu Ala Asp Xaa
145                 150                 155                 160
Glu Phe Arg Arg Tyr Asn Arg Arg Lys Xaa Ser Glu Ile Met Ala Glu
                165                 170                 175
Lys Ala Ala Asn Ala Ala Gly Lys Lys Phe Arg Lys Lys Lys Lys Phe
                180                 185                 190
Arg Asn


        <210> 1226
        <211> 188
        <212> PRT
        <213> Homo sapiens


        <400> 1226
Ser His Asp Thr Ile Leu Arg Val Thr Arg Arg Arg Gln Ile Leu Ile
1                   5                   10                  15
Ala Cys Ser Pro Val Ser Ser Val Arg Lys Lys Pro Lys Val Thr Pro
                20                  25                  30
Thr Lys Glu Ser Tyr Thr Glu Glu Ile Val Ser Glu Ala Glu Ser His
        35                  40                  45
Val Ser Gly Ile Ser Arg Ile Val Leu Pro Thr Glu Lys Thr Thr Gly
        50                  55                  60
Ala Arg Arg Ser Lys Ala Lys Ser Leu Thr Asp Pro Ser Gln Glu Ser
65                  70                  75                  80
His Thr Glu Ala Ile Ser Asp Ala Glu Thr Ser Ser Ser Asp Ile Ser
```

```
                    85                      90                      95
        Phe Ser Gly Ile Ala Thr Arg Arg Thr Arg Ser Met Gln Arg Lys Leu
                   100                     105                     110
        Lys Ala Gln Thr Glu Lys Lys Asp Ser Lys Ile Val Pro Gly Asn Glu
                   115                     120                     125
        Lys Gln Ile Val Gly Thr Pro Val Asn Ser Glu Asp Ser Asp Thr Arg
                   130                     135                     140
        Gln Thr Ser His Leu Gln Ala Arg Ser Leu Ser Glu Ile Asn Lys Pro
        145                     150                     155                     160
        Asn Phe Tyr Asn Asn Asp Phe Asp Asp Phe Ser His Arg Ser Ser
                        165                     170                     175
        Glu Asn Ile Leu Thr Val His Arg Thr Gly Gln Cys
                   180                     185
```

```
        <210> 1227
        <211> 199
        <212> PRT
        <213> Homo sapiens


        <400> 1227
        Glu Glu Gly Ser Arg Gly Gly Arg Glu Gly Ala Gly Lys Met Val Val
         1               5                      10                      15
        Thr Arg Ser Ala Arg Ala Lys Ala Ser Ile Gln Ala Ala Ser Ala Glu
                   20                      25                      30
        Ser Ser Gly Gln Lys Ser Phe Ala Ala Asn Gly Ile Gln Ala His Pro
                   35                      40                      45
        Glu Ser Ser Thr Gly Ser Asp Ala Arg Thr Thr Ala Glu Ser Gln Thr
                   50                      55                      60
        Thr Gly Lys Gln Ser Leu Ile Pro Arg Thr Pro Lys Ala Arg Lys Arg
        65                      70                      75                      80
        Lys Ser Arg Thr Thr Gly Ser Leu Pro Lys Gly Thr Glu Pro Ser Thr
                        85                      90                      95
        Asp Gly Glu Thr Ser Glu Ala Glu Ser Asn Tyr Ser Val Ser Glu His
                   100                     105                     110
        His Asp Thr Ile Leu Arg Val Thr Arg Arg Arg Gln Ile Leu Ile Ala
                   115                     120                     125
        Cys Ser Pro Val Ser Xaa Val Arg Lys Lys Pro Lys Val Thr Pro Thr
                   130                     135                     140
        Lys Glu Ser Tyr Thr Glu Glu Ile Xaa Ser Glu Ala Lys Xaa His Val
        145                     150                     155                     160
        Ser Xaa Ile Ser Arg Ile Xaa Leu Pro Thr Xaa Lys Thr Thr Gly Ala
                        165                     170                     175
        Arg Xaa Ser Lys Ala Lys Ser Leu Thr Xaa Pro Ser Gln Glu Ser His
                   180                     185                     190
        Thr Glu Ala Ile Ser Asp Ala
                   195


        <210> 1228
        <211> 132
        <212> PRT
        <213> Homo sapiens


        <400> 1228
        Ile Lys Asp Gln Leu Gln Lys Lys Arg Arg Lys Glu Arg Gln Lys Thr
         1               5                      10                      15
        Ala Gly Asp Gly Trp Phe Gly Met Lys Ala Pro Glu Met Thr Asn Glu
                   20                      25                      30
        Leu Lys Asn Asp Leu Lys Ala Leu Lys Met Arg Ala Ser Met Asp Pro
                   35                      40                      45
        Lys Arg Phe Xaa Lys Lys Asn Asp Arg Asp Gly Phe Pro Lys Tyr Phe
                   50                      55                      60
        Gln Ile Gly Thr Ile Val Xaa Asn Pro Ala Asp Phe Tyr His Ser Arg
        65                      70                      75                      80
```

483

```
       Ile Pro Lys Lys Gln Arg Lys Arg Thr Ile Val Glu Glu Leu Leu Ala
                       85                  90                  95
       Asp Ser Glu Phe Arg Arg Tyr Asn Arg Arg Lys Tyr Ser Glu Ile Met
                       100                 105                 110
  5    Ala Glu Lys Ala Ala Asn Ala Ala Gly Lys Lys Phe Arg Lys Lys Lys
                       115                 120                 125
       Lys Phe Arg Asn
               130


 10           <210> 1229
              <211> 117
              <212> PRT
              <213> Homo sapiens


 15           <400> 1229
       Ser Pro Ser Ile Leu Ser Asp Ser Ser Ser Cys Glu Ile Ala Tyr Gln
        1               5                   10                  15
       Asp Ala Val Asn Leu Gln Asn Tyr Val Glu Glu Lys Leu Ile Pro Thr
                       20                  25                  30
 20    Trp Asn Trp Met Val Ser Ile Met Asp Ser Thr Glu Ala Gln Leu Arg
                       35                  40                  45
       Tyr Gly Ser Ala Leu Ala Ser Ala Gly Asp Pro Gly His Pro Asn His
                       50                  55                  60
       Pro Leu His Ala Ser Gln Asn Ser Ala Arg Arg Glu Arg Met Thr Ala
 25    65                  70                  75                  80
       Arg Glu Glu Ala Ser Leu Arg Thr Leu Glu Gly Arg Arg Arg Ala Thr
                       85                  90                  95
       Leu Leu Ser Ala Arg Gln Gly Met Met Ser Ala Arg Gly Asp Phe Leu
                       100                 105                 110
 30    Asn Tyr Ala Leu Leu
                       115


              <210> 1230
              <211> 143
 35           <212> PRT
              <213> Homo sapiens


              <400> 1230
       Asp Asp Ile Glu Gln Glu Thr Phe Met Leu Asp Glu Pro Leu Glu Arg
 40     1               5                   10                  15
       Thr Thr Asn Ser Ser His Ala Asn Gly Ala Ala Gln Ala Pro Arg Ser
                       20                  25                  30
       Met Gln Trp Ala Val Arg Asn Thr Gln His Gln Arg Ala Ala Ser Thr
                       35                  40                  45
 45    Ala Pro Ser Ser Thr Ser Thr Pro Ala Ala Ser Ser Ala Gly Leu Ile
                       50                  55                  60
       Tyr Ile Asp Pro Ser Asn Leu Arg Arg Ser Gly Thr Ile Ser Thr Ser
       65                  70                  75                  80
       Ala Ala Ala Ala Ala Ala Ala Leu Glu Ala Ser Asn Ala Ser Ser Tyr
 50                        85                  90                  95
       Leu Thr Ser Ala Ser Ser Leu Ala Arg Ala Tyr Ser Ile Val Ile Arg
                       100                 105                 110
       Gln Ile Ser Asp Leu Met Gly Leu Ile Pro Lys Tyr Asn His Leu Val
                       115                 120                 125
 55    Tyr Ser Gln Ile Pro Ala Ala Val Lys Leu Leu Thr Lys Met Gln
               130                 135                 140


              <210> 1231
              <211> 140
 60           <212> PRT
              <213> Homo sapiens


              <400> 1231
```

```
     Leu Ala Arg Ala Tyr Ser Ile Val Ile Arg Gln Ile Ser Asp Leu Met
     1               5                   10                  15
     Gly Leu Ile Pro Lys Tyr Asn His Leu Val Tyr Ser Gln Ile Pro Ala
                 20                  25                  30
  5  Ala Val Lys Leu Thr Tyr Gln Asp Ala Val Asn Leu Gln Asn Tyr Val
                 35                  40                  45
     Glu Glu Lys Leu Ile Pro Thr Trp Asn Trp Met Val Ser Ile Met Asp
             50                  55                  60
     Ser Thr Glu Ala Gln Leu Arg Tyr Gly Ser Ala Leu Ala Ser Ala Gly
 10  65                  70                  75                  80
     Asp Pro Gly His Pro Asn His Pro Leu His Ala Ser Gln Asn Ser Ala
                     85                  90                  95
     Arg Arg Glu Arg Met Thr Ala Arg Glu Glu Ala Ser Leu Arg Thr Leu
                 100                 105                 110
 15  Glu Gly Arg Arg Arg Ala Thr Leu Leu Ser Ala Arg Gln Gly Met Met
                 115                 120                 125
     Ser Ala Arg Gly Asp Phe Leu Asn Tyr Ala Leu Leu
         130                 135                 140

 20       <210> 1232
          <211> 143
          <212> PRT
          <213> Homo sapiens

 25       <400> 1232
     Asp Asp Ile Glu Gln Glu Thr Phe Met Leu Asp Glu Pro Leu Glu Arg
     1               5                   10                  15
     Thr Thr Asn Ser Ser His Ala Asn Gly Ala Ala Gln Ala Pro Arg Ser
                 20                  25                  30
 30  Met Gln Trp Ala Val Arg Asn Thr Gln His Gln Arg Ala Ala Ser Thr
             35                  40                  45
     Ala Pro Ser Ser Thr Ser Thr Pro Ala Ala Ser Ser Ala Gly Leu Ile
         50                  55                  60
     Tyr Ile Asp Pro Ser Asn Leu Arg Arg Ser Gly Thr Ile Ser Thr Ser
 35  65                  70                  75                  80
     Ala Ala Ala Ala Ala Ala Ala Leu Glu Ala Ser Asn Ala Ser Ser Tyr
                     85                  90                  95
     Leu Thr Ser Ala Ser Ser Leu Ala Arg Ala Tyr Ser Ile Val Ile Arg
                 100                 105                 110
     Gln Ile Ser Asp Leu Met Gly Leu Ile Pro Lys Tyr Asn His Leu Val
 40              115                 120                 125
     Tyr Ser Gln Ile Pro Ala Ala Val Lys Leu Leu Thr Lys Met Gln
         130                 135                 140

 45       <210> 1233
          <211> 93
          <212> PRT
          <213> Homo sapiens

 50       <400> 1233
     Phe Phe Gln Phe Lys Arg Trp Xaa Trp Ser Ile Val Glu Lys Met Ser
     1               5                   10                  15
     Met Xaa Asp Xaa Gln Asp Leu Val Tyr Phe Trp Thr Ser Ser Pro Ser
                 20                  25                  30
 55  Leu Pro Ala Ser Glu Glu Gly Phe Gln Pro Met Pro Ser Ile Thr Ile
                 35                  40                  45
     Arg Pro Pro Asp Asp Gln His Leu Pro Thr Ala Asn Thr Cys Ile Ser
             50                  55                  60
     Arg Leu Tyr Val Pro Leu Tyr Ser Ser Lys Gln Ile Leu Lys Gln Lys
 60  65                  70                  75                  80
     Leu Leu Leu Ala Ile Lys Thr Lys Asn Phe Gly Phe Val
                     85                  90
```

```
<210> 1234
<211> 196
<212> PRT
<213> Homo sapiens

<400> 1234
Arg Val Pro Val Val Ile Ala Gly Val Val Tyr Cys Gln Glu Ala Leu
1               5                   10                  15
Arg Asp Trp Gly Arg Val Thr Ala Ser Ser Thr Gly Ala Met Ala Phe
            20                  25                  30
Leu Arg Ser Met Trp Gly Val Leu Ser Ala Leu Gly Arg Ser Gly Ala
        35                  40                  45
Glu Leu Cys Thr Gly Cys Gly Ser Arg Leu Arg Ser Pro Phe Ser Phe
    50                  55                  60
Val Tyr Leu Pro Arg Trp Phe Ser Ser Val Leu Ala Ser Cys Pro Lys
65                  70                  75                  80
Lys Pro Val Ser Ser Tyr Leu Arg Phe Ser Lys Glu Gln Leu Pro Ile
                85                  90                  95
Phe Lys Ala Gln Asn Pro Asp Ala Lys Thr Thr Glu Leu Ile Arg Arg
            100                 105                 110
Ile Ala Gln Arg Trp Arg Glu Leu Pro Asp Ser Lys Lys Lys Ile Tyr
        115                 120                 125
Gln Asp Ala Tyr Arg Ala Glu Trp Gln Val Tyr Lys Glu Glu Ile Ser
    130                 135                 140
Arg Phe Lys Glu Gln Leu Thr Pro Ser Gln Ile Met Ser Leu Glu Lys
145                 150                 155                 160
Glu Ile Met Asp Lys His Leu Lys Arg Lys Ala Met Thr Lys Lys Lys
                165                 170                 175
Glu Leu Thr Leu Leu Gly Lys Pro Lys Arg Pro Arg Ser Ala Tyr Asn
            180                 185                 190
Arg Leu Cys Ser
            195


<210> 1235
<211> 58
<212> PRT
<213> Homo sapiens


<400> 1235
Trp Lys Asn Leu Ser Asp Ser Glu Lys Glu Leu Tyr Ile Gln His Ala
1               5                   10                  15
Lys Glu Asp Glu Thr Arg Tyr His Asn Glu Met Lys Ser Trp Glu Glu
            20                  25                  30
Gln Met Ile Glu Val Gly Arg Lys Asp Leu Leu Arg Arg Thr Ile Lys
        35                  40                  45
Lys Gln Arg Lys Tyr Gly Ala Glu Glu Cys
    50                  55


<210> 1236
<211> 196
<212> PRT
<213> Homo sapiens


<400> 1236
Arg Val Pro Val Val Ile Ala Gly Val Val Tyr Cys Gln Glu Ala Leu
1               5                   10                  15
Arg Asp Trp Gly Arg Val Thr Ala Ser Ser Thr Gly Ala Met Ala Phe
            20                  25                  30
Leu Arg Ser Met Trp Gly Val Leu Ser Ala Leu Gly Arg Ser Gly Ala
        35                  40                  45
Glu Leu Cys Thr Gly Cys Gly Ser Arg Leu Arg Ser Pro Phe Ser Phe
    50                  55                  60
Val Tyr Leu Pro Arg Trp Phe Ser Ser Val Leu Ala Ser Cys Pro Lys
```

```
      65                      70                      75                      80
      Lys Pro Val Ser Ser Tyr Leu Arg Phe Ser Lys Glu Gln Leu Pro Ile
                          85                      90                      95
      Phe Lys Ala Gln Asn Pro Asp Ala Lys Thr Thr Glu Leu Ile Arg Arg
 5                        100                     105                     110
      Ile Ala Gln Arg Trp Arg Glu Leu Pro Asp Ser Lys Lys Lys Ile Tyr
                          115                     120                     125
      Gln Asp Ala Tyr Arg Ala Glu Trp Gln Val Tyr Lys Glu Glu Ile Ser
                          130                     135                     140
10    Arg Phe Lys Glu Gln Leu Thr Pro Ser Gln Ile Met Ser Leu Glu Lys
      145                     150                     155                     160
      Glu Ile Met Asp Lys His Leu Lys Arg Lys Ala Met Thr Lys Lys Lys
                          165                     170                     175
      Glu Leu Thr Leu Leu Gly Lys Pro Lys Arg Pro Arg Ser Ala Tyr Asn
15                        180                     185                     190
      Arg Leu Cys Ser
                      195


            <210> 1237
20          <211> 225
            <212> PRT
            <213> Homo sapiens


            <400> 1237
25    Ser Ala His Ser Arg Leu Ala Ala Arg His Tyr Ser Gly Pro Gly Pro
      1               5                   10                  15
      Ala Pro Ala Arg Pro Arg Arg Arg Gln Phe Arg Leu Lys Lys Leu Ile
                      20                  25                  30
      Asp Gln Glu Ile Lys Ser Gln Glu Glu Lys Glu Gln Glu Lys Glu Lys
30          35                  40                  45
      Arg Val Thr Thr Leu Lys Glu Glu Leu Thr Lys Leu Lys Ser Phe Ala
          50                  55                  60
      Leu Met Val Val Asp Glu Gln Gln Arg Leu Thr Ala Gln Leu Thr Leu
      65                  70                  75                  80
35    Gln Arg Gln Lys Ile Gln Glu Leu Thr Thr Asn Ala Lys Glu Thr His
                      85                  90                  95
      Thr Lys Leu Ala Leu Ala Glu Ala Arg Val Gln Glu Glu Glu Gln Lys
                      100                 105                 110
      Ala Thr Arg Leu Glu Lys Glu Leu Gln Thr Gln Thr Thr Lys Phe His
40          115                 120                 125
      Gln Asp Gln Asp Thr Ile Met Ala Lys Leu Thr Asn Glu Asp Ser Gln
          130                 135                 140
      Asn Arg Gln Leu Gln Gln Lys Leu Ala Ala Leu Ser Arg Gln Ile Asp
      145                 150                 155                 160
45    Glu Leu Glu Glu Thr Asn Arg Ser Leu Arg Lys Ala Glu Glu Glu Leu
                      165                 170                 175
      Gln Asp Ile Lys Glu Lys Ile Ser Lys Gly Glu Tyr Gly Asn Ala Gly
                      180                 185                 190
      Ile Met Ala Glu Val Glu Glu Leu Xaa Lys Arg Val Leu Asp Met Glu
50          195                 200                 205
      Gly Lys Asp Glu Glu Leu Ile Lys Met Glu Gly Ala Val Gln Arg Ser
          210                 215                 220
      Gln
      225
55
            <210> 1238
            <211> 95
            <212> PRT
            <213> Homo sapiens
60
            <400> 1238
      Gly Gly Arg Gln Ser Leu Pro Leu Thr Leu Tyr Phe Gln Gly Asp Thr
      1               5                   10                  15
```

```
Asp Tyr Lys Lys Arg Asn Ser Ala Leu Gly Lys Lys Ala Leu Pro Gly
         20                  25                  30
Leu Thr Val Gln His Ser Leu Ala Ser Gly Ile Leu Ser Leu Leu Thr
         35                  40                  45
Val Tyr Ile Thr Thr Leu Val His Ser Gly His Phe Ser Phe Leu Glu
         50                  55                  60
Ser Pro Val Asp Leu Thr Pro Met Pro Met Ile Phe Phe Ser Trp Leu
65                  70                  75                  80
Ile Lys Asn Ser Leu Phe Leu Leu Arg His Pro Cys His Tyr Lys
                  85                  90                  95


         <210> 1239
         <211> 113
         <212> PRT
         <213> Homo sapiens


         <400> 1239
Thr Glu Val Arg Ala Ser Gln Val Val Phe Xaa Thr Ser Val Ser Pro
1                  5                  10                  15
Lys Xaa Ser Ser Leu Gln Xaa Asp Met Arg Xaa Xaa Arg Gly Lys Lys
         20                  25                  30
Val Phe Xaa Val Leu His Leu Gln Lys Xaa Val Xaa Ser Gln Asp Pro
         35                  40                  45
Leu Gly Ala Thr Arg Gly Pro Ala Gln Cys Gln Gln Trp Thr Pro Pro
         50                  55                  60
Ala Gly Thr Pro Pro Gly Ala Arg Ala Gly Pro Pro Gly Val Val Ala
65                  70                  75                  80
Cys Thr Glu Gly Thr Thr Tyr Val Cys Ser Val Cys Pro Ala Lys Phe
                  85                  90                  95
Asp Gln Ile Glu Gln Phe Asn Asp His Met Arg Met His Val Ser Asp
                  100                 105                 110
Gly


         <210> 1240
         <211> 177
         <212> PRT
         <213> Homo sapiens


         <400> 1240
Ala Ala Cys Cys Gly Thr Ala Ala Ala Phe Leu Leu Gly Arg Arg Gly
1                  5                  10                  15
Gln Val Ala Gly Pro Arg Gln Gln Ser Pro Pro Gly Pro Gly Gly Ala
         20                  25                  30
Ala Glu Arg Ala Ala Gly His Ala Arg Pro His Leu Arg Tyr Glu Val
         35                  40                  45
Gln Arg Leu Pro Glu Gln Ala Gly Lys Ala Ala Gln Lys Gly Asn Cys
         50                  55                  60
Pro Ser Pro Lys Gln Ala Glu Pro Ala Ala Gln Pro Ala Pro Ala His
65                  70                  75                  80
Gly Ala Arg Leu Gly Arg Leu Arg Arg Gly Arg Ser Cys Ala Gly Ala
                  85                  90                  95
Arg Arg Arg Ala Lys Lys Ser Phe Arg Gly Trp Arg Leu Phe Cys Ser
                  100                 105                 110
Gln Gly Lys Gly Arg Gly Ala His Ala Glu Thr Xaa Xaa Val Glu Glu
         115                 120                 125
Glu Xaa Pro Xaa Lys Ala Pro Gly Arg Arg Ser Ser Pro Xaa Ala Phe
         130                 135                 140
Gly Val Xaa Arg Ala Asn Xaa Glu Pro Gly Arg Gly Pro Trp Gly Arg
145                 150                 155                 160
Lys Ala Thr Pro Arg Arg Pro Trp Ala Phe Glu Phe Lys Ile Phe Phe
                  165                 170                 175
Gln
```

```
<210> 1241
<211> 270
<212> PRT
<213> Homo sapiens


<400> 1241
Leu Lys Glu Val Pro Asp Tyr Leu Asp His Ile Lys His Pro Met Asp
1               5                   10                  15
Phe Ala Thr Met Arg Lys Arg Leu Glu Ala Gln Gly Tyr Lys Asn Leu
            20                  25                  30
His Glu Phe Glu Glu Asp Phe Asp Leu Ile Ile Asp Asn Cys Met Lys
            35                  40                  45
Tyr Asn Ala Arg Asp Thr Val Phe Tyr Arg Ala Ala Val Arg Leu Arg
        50                  55                  60
Asp Gln Gly Gly Val Val Leu Arg Gln Ala Arg Arg Glu Val Asp Ser
65                  70                  75                  80
Ile Gly Leu Glu Glu Ala Ser Gly Met His Leu Pro Glu Arg Pro Ala
            85                  90                  95
Ala Ala Pro Arg Arg Pro Phe Ser Trp Glu Asp Val Asp Arg Leu Leu
            100                 105                 110
Asp Pro Ala Asn Arg Ala His Leu Gly Leu Glu Glu Gln Leu Arg Glu
            115                 120                 125
Leu Leu Asp Met Leu Asp Leu Thr Cys Ala Met Lys Ser Ser Gly Ser
            130                 135                 140
Arg Ser Lys Arg Ala Lys Leu Leu Lys Lys Glu Ile Ala Leu Leu Arg
145                 150                 155                 160
Asn Lys Leu Ser Gln Gln His Ser Gln Pro Leu Pro Thr Gly Pro Gly
                165                 170                 175
Leu Glu Gly Phe Glu Glu Asp Gly Ala Ala Leu Gly Pro Gly Gly Gly
            180                 185                 190
Arg Arg Ser Pro Ser Glu Val Gly Asp Ser Ser Ala Ala Lys Glu Lys
            195                 200                 205
Val Ala Glu His Met Arg Arg Leu Xaa Xaa Trp Arg Arg Ser Xaa Xaa
            210                 215                 220
Glu Lys Arg Leu Asp Ala Gly Leu His Gln Xaa Leu Leu Gly Cys Xaa
225                 230                 235                 240
Glu Pro Thr Xaa Asn Pro Ala Gly Gly Leu Gly Gly Gly Arg Pro His
                245                 250                 255
Pro Asp Asp Leu Gly Pro Ser Ser Ser Arg Phe Ser Phe Lys
                260                 265                 270


<210> 1242
<211> 66
<212> PRT
<213> Homo sapiens


<400> 1242
Met Phe Asn Asn Phe Val Asn His Ala Leu Tyr Xaa Glu Tyr His Leu
1               5                   10                  15
Phe Asn Lys Thr Gly Cys Lys Phe Thr Met Thr Asn Val Tyr Phe Lys
            20                  25                  30
Lys Glu Asn Xaa Ile Ile Leu Asn Gly Thr Leu Trp Lys Glu Gly Arg
            35                  40                  45
Ile Lys Leu Cys Cys Asp Ile Thr Cys Arg Ser Pro Lys Thr Leu Arg
            50                  55                  60
Cys Pro
65


<210> 1243
<211> 85
<212> PRT
```

```
        <213> Homo sapiens

        <400> 1243
    Ser Tyr Ala Val Thr Ser Leu Ala Asp His Gln Lys His Ser Ala Ala
5   1           5               10              15
    Arg Asp Arg Arg Trp Val Cys Pro Arg Ser Arg Arg Pro Ala His Leu
                20              25              30
    Lys Pro Arg Arg Cys Ala Ser Gln Arg Ile Ile Tyr Cys Arg Lys Cys
            35              40              45
10  Ile His Leu Leu Tyr Asn Glu Lys Tyr Ile Cys Lys Gly Ile Leu Ile
        50              55              60
    Cys Ile Phe Ile Gln Ala His Lys Asn Ser Thr Trp Leu Gly Ser Arg
    65              70              75              80
    Met His Cys Ile Val
15                  85


        <210> 1244
        <211> 56
        <212> PRT
20      <213> Homo sapiens


        <400> 1244
    Val Val Leu Xaa Val Lys Ser Met Ile Tyr Lys Ile Ile Lys His Ser
25  1           5               10              15
    Lys Val Phe Lys Lys Lys Leu His Ile Lys Xaa Ser Asp Ala Xaa Thr
                20              25              30
    Pro Xaa Leu Gly Asp Val Arg Xaa Xaa Xaa Leu Gly Leu Pro Gly Arg
            35              40              45
    Ala Pro Pro Leu Tyr Arg Ala Lys
30      50              55


        <210> 1245
        <211> 227
        <212> PRT
35      <213> Homo sapiens


        <400> 1245
    Gly Asp Pro Val Gly Arg Glu Glu Gly Gly Lys Met Val Leu Glu Ser
40  1           5               10              15
    Thr Met Val Cys Val Asp Asn Ser Glu Tyr Met Arg Asn Gly Asp Phe
                20              25              30
    Leu Pro Thr Arg Leu Gln Ala Gln Gln Asp Ala Val Asn Ile Val Cys
            35              40              45
    His Ser Lys Thr Arg Ser Asn Pro Glu Asn Asn Val Gly Leu Ile Thr
45      50              55              60
    Leu Ala Asn Asp Cys Glu Val Leu Thr Thr Leu Thr Pro Asp Thr Gly
    65              70              75              80
    Arg Ile Leu Ser Lys Leu His Thr Val Gln Pro Lys Gly Lys Ile Thr
                85              90              95
50  Phe Cys Thr Gly Ile Arg Val Ala His Leu Ala Leu Lys His Arg Gln
            100             105             110
    Gly Lys Asn His Lys Met Arg Ile Ile Ala Phe Val Gly Ser Pro Val
            115             120             125
    Glu Asp Asn Glu Lys Asp Leu Val Lys Leu Ala Lys Arg Leu Lys Lys
55      130             135             140
    Glu Lys Val Asn Val Asp Ile Ile Asn Phe Gly Glu Glu Glu Val Asn
    145             150             155             160
    Thr Glu Lys Leu Thr Ala Phe Val Asn Thr Leu Asn Gly Lys Asp Gly
                165             170             175
60  Thr Gly Ser Tyr Leu Val Thr Val Pro Ser Gly Pro Ser Leu Ala Asp
                180             185             190
    Ala Leu Ile Ser Ser Xaa Ile Leu Ala Gly Glu Xaa Gly Ala Leu Ala
            195             200             205
```

4 90

```
Gly Ser Trp Val Pro Val Thr Phe Glu Phe Trp Ser Xaa Ile Pro Xaa
    210             215             220
Leu Asp Pro
225


    <210> 1246
    <211> 141
    <212> PRT
    <213> Homo sapiens


    <400> 1246
Gln Asn Thr Ala Lys Val Asn Cys Val Gly Glu Pro His Leu His Arg
1               5               10              15
Asn Gln Ile Asn Glu Phe Arg Gly Tyr Asp Tyr Ser Asn Leu Arg Ala
            20              25              30
His Gln Lys Gln Ala Ser Arg Ser Gln Phe Ala Ser Val Cys Leu Ser
        35              40              45
Gly Asp Lys Trp Glu Asn Met Val Pro Pro Val Arg Asp Pro Leu Ser
    50              55              60
Cys Ala Ala His Ser Thr Thr Ser Leu Cys Cys Phe His Gln Ala Glu
65              70              75              80
Thr Leu Pro Tyr Gly Val Tyr Gly Leu Leu Pro Val His Gln Cys Asp
            85              90              95
Arg Lys Asp Ser Cys His Tyr Cys Pro Trp Leu Gln Phe Lys Gly Ile
            100             105             110
Gln Cys Arg Cys Lys Phe Tyr Gly Thr Ile Phe Ile Gly Gly Phe Gly
        115             120             125
Gln Asn Ala Val Val Val Gln Leu Ile Asn Thr Asn Cys
    130             135             140


    <210> 1247
    <211> 106
    <212> PRT
    <213> Homo sapiens


    <400> 1247
Gly Pro Thr Arg Ser Arg Pro Arg Gly Val Asn Leu Pro Leu Cys Ala
1               5               10              15
Ser Val Glu Thr Ser Gly Lys Thr Trp Ser His Leu Cys Glu Thr Pro
            20              25              30
Cys Pro Val Leu Leu Thr Gln Gln His Leu Cys Val Ala Phe Thr Arg
        35              40              45
Leu Arg Pro Tyr Pro Met Gly Tyr Met Gly Phe Tyr Leu Cys Thr Ser
    50              55              60
Val Thr Gly Lys Ile His Val Thr Thr Val Arg Gly Tyr Asn Ser Lys
65              70              75              80
Val Ser Asn Val Ala Val Asn Phe Met Ala Leu Phe Leu Leu Glu Asp
            85              90              95
Leu Val Arg Met Gln Leu Leu Tyr Asn Ser
            100             105


    <210> 1248
    <211> 194
    <212> PRT
    <213> Homo sapiens


    <400> 1248
Pro Lys Glu Glu Asp Met Glu Val Asp Ile Pro Ala Val Lys Val Lys
1               5               10              15
Glu Glu Pro Arg Asp Glu Glu Glu Ala Lys Met Lys Ala Pro Pro
            20              25              30
Lys Ala Ala Arg Lys Thr Pro Gly Leu Pro Lys Asp Val Ser Val Ala
        35              40              45
```

491

```
        Glu Leu Leu Arg Glu Leu Ser Leu Thr Lys Glu Glu Glu Leu Leu Phe
            50                  55                  60
        Leu Gln Leu Pro Asp Thr Leu Pro Gly Gln Pro Pro Thr Gln Asp Ile
        65                  70                  75                  80
   5    Lys Pro Ile Lys Thr Glu Val Gln Gly Glu Asp Gly Gln Val Val Leu
                        85                  90                  95
        Ile Lys Gln Glu Lys Asp Arg Glu Ala Lys Leu Ala Glu Asn Ala Cys
                    100                 105                 110
        Thr Leu Ala Asp Leu Thr Glu Gly Gln Val Gly Lys Leu Leu Ile Arg
  10            115                 120                 125
        Lys Ser Gly Arg Val Gln Leu Leu Leu Gly Lys Val Thr Leu Asp Val
                130                 135                 140
        Thr Met Gly Thr Ala Cys Ser Phe Leu Gln Glu Leu Val Ser Val Gly
        145                 150                 155                 160
  15    Leu Gly Asp Ser Arg Thr Gly Glu Met Thr Val Leu Gly His Val Lys
                        165                 170                 175
        His Lys Leu Val Cys Ser Pro Asp Phe Glu Ser Leu Leu Asp His Lys
                        180                 185                 190
        His Arg
  20


            <210> 1249
            <211> 106
            <212> PRT
  25        <213> Homo sapiens


            <400> 1249
        Gln Gly Gln Val Pro Ser Ser Lys Asp Val Pro Ser Pro Arg Cys Arg
        1               5                   10                  15
  30    Lys Val Thr Val Pro Phe Thr Ala Ala Val Gly Gly Asn Pro Gly Gly
                    20                  25                  30
        Pro Gly Thr Met Val Ala Lys Gly Trp Asn Glu Trp Ala Gln Met Gly
                    35                  40                  45
        Pro Leu Leu Gly Xaa Gln Asn Ser Arg Thr Lys Cys Xaa Gly Gln Gly
  35        50                  55                  60
        Xaa Asn Pro Gly Ala Gln Gly Ala Xaa Leu Pro Ser Pro Xaa Tyr Phe
        65                  70                  75                  80
        Tyr Arg Xaa Phe Gly Ile Pro Xaa Gly Ile Xaa Lys Ser Arg Gly Xaa
                        85                  90                  95
  40    Tyr Xaa Phe Val Ala Tyr Val Phe Pro Arg
                    100                 105


            <210> 1250
            <211> 113
            <212> PRT
  45        <213> Homo sapiens


            <400> 1250
        Asp Ile Asn Thr Lys Ile Asn Ser Arg Ala Lys Ser Pro Ala Ala Arg
  50    1               5                   10                  15
        Met Cys His Leu His Ala Ala Gly Arg Ser Leu Cys His Ser Gln Leu
                    20                  25                  30
        Leu Trp Glu Glu Thr Leu Gly Asp Leu Glu Gln Trp Leu Pro Lys Ala
                    35                  40                  45
  55    Gly Met Ser Gly Leu Lys Trp Gly Pro Phe Trp Gly Xaa Lys Ile Gln
                50                  55                  60
        Glu Gln Asn Xaa Leu Asp Lys Ala Xaa Thr Arg Gly Pro Lys Ala Pro
        65                  70                  75                  80
        Xaa Phe Leu His Leu Xaa Ile Phe Thr Xaa Gly Leu Gly Ser Gln Xaa
  60                    85                  90                  95
        Gly Xaa Lys Asn Gln Gly Glu Xaa Thr Xaa Leu Trp Leu Thr Phe Ser
                    100                 105                 110
        Gln
```

4 92

```
<210> 1251
<211> 114
<212> PRT
<213> Homo sapiens


<400> 1251
Ala His Ser Phe Gln Pro Leu Ala Thr Ile Val Pro Gly Pro Pro Gly
1               5                   10                  15
Phe Pro Pro Thr Ala Ala Val Asn Gly Thr Val Thr Phe Leu Gln Arg
            20                  25                  30
Gly Asp Gly Thr Ser Leu Leu Leu Gly Thr Trp Pro Cys Tyr Leu Phe
            35                  40                  45
Leu Tyr Leu Cys Leu Asn Leu Phe His Leu Met His Pro Pro Arg Val
        50                  55                  60
Asp Gly Glu Gly Leu Cys Glu Gly Ala Gly Phe Ser Trp Cys Leu Leu
65                  70                  75                  80
Gly Cys Arg Gly Arg Lys Arg Val Asp Cys Ser Phe Cys Trp Cys Ser
                85                  90                  95
Pro Arg Pro Pro Gly Gly Ser Ile Gly Glu Arg Ala Arg Ile Glu Ser
            100                 105                 110
Glu Thr


<210> 1252
<211> 126
<212> PRT
<213> Homo sapiens


<400> 1252
Ser Glu Arg Ser Ser Met Ser Val Gly Leu Gly Arg Ser Gln Leu Asp
1               5                   10                  15
Ser Lys Gly Gly Val Val Gly Gly Thr Ile Asp Val Asn Ala Leu Glu
            20                  25                  30
Met Xaa Ala His Ile Ser Glu His Pro Asn Gln Gln Pro Xaa His Lys
        35                  40                  45
Ile Gln Ile Thr Met Gly Ser Thr Glu Ala Arg Val Asp Tyr Met Gly
        50                  55                  60
Ser Ser Ile Leu Met Gly Ile Phe Ser Asn Ala Asp Leu Lys Leu Gln
65                  70                  75                  80
Asp Glu Trp Lys Val Asn Leu Tyr Asn Thr Leu Asp Ser Ser Ile Thr
                85                  90                  95
Asp Lys Ser Glu Ile Phe Val Xaa Trp Arg Phe Glu Xaa Gly Ile Phe
            100                 105                 110
Phe Gln Xaa Asn Xaa Xaa Xaa Xaa Gln Pro His Xaa Ile Trp
        115                 120                 125


<210> 1253
<211> 87
<212> PRT
<213> Homo sapiens


<400> 1253
Lys Ser Leu Phe Phe Gly Gly Arg Leu Arg Asn Trp Ser Pro Arg Lys
1               5                   10                  15
Thr Glu Xaa Val Cys Trp Ile Lys Leu Leu Cys Glu Lys Ile Xaa Xaa
            20                  25                  30
Ala Ser Phe Leu Phe Phe Thr Arg Xaa Gly Val Val Xaa Leu Xaa Xaa
            35                  40                  45
Xaa Xaa Xaa Gly Lys Ile Ser His Xaa Gln Ile Ser Xaa Gly Arg Lys
        50                  55                  60
Ser His Phe Tyr Gln Leu Cys Leu Asn Pro Met Tyr Tyr Thr Ser Leu
```

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        65                    70              75                  80
        Leu Ser Ile His Pro Glu Ala
                        85


            <210> 1254
            <211> 50
            <212> PRT
            <213> Homo sapiens


            <400> 1254
        Lys Gln Leu Asn Val Gln Met Asn Met Ser Asn Val Met Gly Asn Thr
        1                   5               10                  15
        Thr Trp Thr Thr Ser Gly Leu Lys Ser Gln Gly Arg Leu Ser Val Gly
                    20              25                  30
        Ser Asn Arg Asp Pro Arg Asp Gln Ala Cys Leu Leu Val Trp Glu Asp
                35                  40                  45
        His Asn
        50


            <210> 1255
            <211> 220
            <212> PRT
            <213> Homo sapiens


            <400> 1255
        Glu Ala Gly Thr Thr Pro Ala Lys Asp Trp Thr Leu Val Glu Thr Pro
        1                   5               10                  15
        Pro Gly Glu Glu Gln Ala Lys Gln Asn Ala Asn Ser Gln Leu Ser Ile
                    20              25                  30
        Leu Phe Ile Glu Lys Pro Gln Gly Gly Thr Val Lys Val Gly Glu Asp
                35                  40                  45
        Ile Thr Phe Ile Ala Lys Val Lys Ala Glu Asp Leu Leu Arg Lys Pro
                50                  55                  60
        Thr Ile Lys Trp Phe Lys Gly Lys Trp Met Asp Leu Ala Ser Lys Ala
        65                  70                  75                  80
        Gly Lys His Leu Gln Leu Lys Glu Thr Phe Glu Arg His Ser Arg Val
                    85                  90                  95
        Tyr Thr Phe Glu Met Gln Ile Ile Lys Ala Lys Asp Asn Phe Ala Gly
                    100                 105                 110
        Asn Tyr Arg Cys Glu Val Thr Tyr Lys Asp Lys Phe Asp Ser Cys Ser
                115                 120                 125
        Phe Asp Leu Glu Val His Glu Ser Thr Gly Thr Thr Pro Asn Ile Asp
                130                 135                 140
        Ile Arg Ser Ala Phe Lys Arg Arg Glu Val Lys Gln Gln Glu Glu Glu
        145                 150                 155                 160
        Pro Gln Val Asp Val Trp Glu Leu Leu Lys Asn Ala Lys Pro Ser Glu
                    165                 170                 175
        Tyr Glu Lys Ile Ala Xaa Gln Tyr Gly Ile Thr Asp Leu Arg Xaa Met
                    180                 185                 190
        Leu Lys Arg Leu Lys Arg Met Pro Gln Arg Xaa Glu Lys Arg Pro His
                195                 200                 205
        Phe Cys Gln Lys Ile Leu Gly Ser Cys Leu Ser Gly
                210                 215                 220


            <210> 1256
            <211> 139
            <212> PRT
            <213> Homo sapiens


            <400> 1256
        Ile Tyr Lys Ile Pro Val Met Lys Thr Phe Asp Phe Ser Glu Ala Pro
        1                   5               10                  15
        Met Phe Thr Gln Pro Leu Val Asn Thr Tyr Ala Ile Ala Gly Tyr Asn
```

```
                    20                    25                    30
        Ala Thr Leu Asn Cys Ser Val Arg Gly Asn Pro Lys Pro Lys Ile Thr
                    35                    40                    45
        Trp Met Lys Asn Lys Val Ala Ile Val Asp Asp Pro Arg Tyr Arg Met
    5           50                    55                    60
        Phe Ser Asn Gln Gly Val Cys Thr Leu Glu Ile Arg Lys Pro Ser Pro
        65                    70                    75                    80
        Tyr Asp Gly Gly Thr Tyr Cys Cys Lys Ala Val Asn Asp Leu Gly Thr
                            85                    90                    95
   10   Val Glu Ile Glu Cys Lys Leu Glu Val Lys Gly Gly Leu Ser Xaa Cys
                    100                   105                   110
        Arg Leu Leu Leu Gln Xaa Val Pro Pro Asn Ile Ile Asp Ser Tyr Xaa
                    115                   120                   125
        Arg Asp Leu His Ser Ser Asn Pro Glu Glu Tyr
   15           130                   135
```

```
            <210> 1257
            <211> 210
            <212> PRT
   20       <213> Homo sapiens


            <400> 1257
        Cys Leu Ser Leu Pro Ser Ser Trp Asp His Arg Gln Leu Tyr Leu Ser
        1               5                    10                    15
   25   Met Asn Ile Asp Asp Lys Leu Glu Gly Leu Phe Leu Lys Cys Gly Gly
                    20                    25                    30
        Ile Asp Glu Met Gln Ser Ser Arg Thr Met Val Val Met Gly Gly Val
                    35                    40                    45
        Ser Gly Gln Ser Thr Val Ser Gly Glu Leu Gln Asp Ser Val Leu Gln
   30           50                    55                    60
        Asp Arg Ser Met Pro His Gln Glu Ile Leu Ala Ala Asp Glu Val Leu
        65                    70                    75                    80
        Gln Glu Ser Glu Met Arg Gln Gln Asp Met Ile Ser His Asp Glu Leu
                            85                    90                    95
   35   Met Val His Glu Glu Thr Val Lys Asn Asp Glu Glu Gln Met Glu Thr
                    100                   105                   110
        His Glu Arg Leu Pro Gln Gly Leu Gln Tyr Ala Leu Asn Val Pro Ile
                    115                   120                   125
        Ser Val Lys Gln Glu Ile Thr Phe Thr Asp Val Ser Glu Gln Leu Met
   40           130                   135                   140
        Arg Asp Lys Lys Gln Ile Arg Glu Pro Val Asp Leu Gln Lys Lys Lys
        145                   150                   155                   160
        Lys Arg Lys Gln Arg Ser Pro Ala Lys Ile Leu Thr Ile Asn Glu Asp
                    165                   170                   175
   45   Gly Ser Leu Gly Leu Lys Thr Pro Lys Ser His Val Cys Glu His Cys
                    180                   185                   190
        Asn Ala Ala Phe Arg Thr Asn Tyr Pro Tyr Arg Asp Met Ser Ser Ser
                    195                   200                   205
        Tyr Arg
   50       210
```

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            <210> 1258
            <211> 198
            <212> PRT
   55       <213> Homo sapiens


            <400> 1258
        Ser Phe Ser Asp Ser Asp Asp Asp Ser Cys Leu Trp Lys Arg Lys Arg
        1               5                    10                    15
   60   Gln Lys Cys Phe Asn Pro Pro Pro Lys Pro Glu Pro Phe Gln Phe Gly
                    20                    25                    30
        Gln Ser Ser Gln Lys Pro Pro Val Ala Gly Gly Lys Lys Ile Asn Asn
                    35                    40                    45
```

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       Ile Trp Gly Ala Val Leu Gln Glu Gln Asn Gln Asp Ala Val Ala Thr
           50                  55                  60
       Glu Leu Gly Ile Leu Gly Met Glu Gly Thr Ile Asp Arg Ser Arg Gln
       65                  70                  75                  80
   5   Ser Glu Thr Tyr Asn Tyr Leu Leu Ala Lys Lys Leu Arg Lys Glu Ser
                       85                  90                  95
       Gln Glu His Thr Lys Asp Leu Asp Lys Glu Leu Asp Glu Tyr Met His
                       100                 105                 110
       Gly Gly Lys Lys Met Gly Ser Lys Glu Glu Glu Asn Gly Gln Gly His
   10                  115                 120                 125
       Leu Lys Arg Lys Arg Pro Val Lys Asp Arg Leu Gly Asn Arg Pro Glu
               130                 135                 140
       Met Asn Tyr Lys Gly Arg Tyr Gln Ile Thr Ala Glu Asp Ser Gln Glu
       145                 150                 155                 160
   15  Lys Val Ala Asp Glu Ile Ser Phe Arg Leu Gln Glu Pro Lys Lys Asp
                       165                 170                 175
       Leu Ile Ala Pro Ser Ser Glu Asp Tyr Trp Tyr Lys Lys Ala Ile Glu
                       180                 185                 190
       Leu Leu Met Glu Thr Arg
   20              195


               <210> 1259
               <211> 103
               <212> PRT
   25          <213> Homo sapiens


               <400> 1259
       Arg Gln Ser Leu Ala Leu Ser Pro Arg Leu Glu Tyr Ser Gly Thr Ile
       1               5                   10                  15
   30  Ser Ala His Cys Asn Leu Cys Leu Pro Gly Ser Gly Asp Ser Pro Ala
                       20                  25                  30
       Ser Ala Ser Arg Val Ala Gly Ile Ile Gly Met Glu Asn His Thr Trp
                   35                  40                  45
       Leu Xaa Phe Val Phe Leu Val Xaa Met Lys Phe His His Val Gly Leu
   35      50                  55                  60
       Ala Gly Leu Lys Leu Leu Thr Ser Ser Asp Leu Pro Ala Leu Val Ser
       65                  70                  75                  80
       Gln Ser Val Gly Ile Thr Gly Val Ser His Arg Ala Trp Pro Met Leu
                       85                  90                  95
   40  Val Phe Ile Leu Lys Ile Ala
                       100


               <210> 1260
               <211> 98
   45          <212> PRT
               <213> Homo sapiens


               <400> 1260
       Phe Thr Ala Lys Ile Asn Leu Lys Lys Gln Thr Asn Leu Gln Met Val
   50  1               5                   10                  15
       Cys Tyr Asp Leu Asp Lys Thr Asp Tyr Gln Leu Val Ile Leu Ile Ile
                       20                  25                  30
       Ser Thr Cys Asn Lys Ile Glu Lys Leu Asn Pro Val Leu Tyr Thr Leu
                   35                  40                  45
   55  Lys Val Phe Leu Xaa Lys Tyr Ile Phe Lys Met Phe Tyr Gln Leu His
               50                  55                  60
       Phe Phe Pro His Ile Phe Leu Asn Gln Glu Lys Gln Xaa Gly Leu Phe
       65                  70                  75                  80
       Leu Gln Glu Phe Ser Trp Phe Ile Gln Val Ala Lys Thr Leu Ala Ile
   60                  85                  90                  95
       Ser Ser
```

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<210> 1261
<211> 266
<212> PRT
<213> Homo sapiens

<400> 1261
Glu Leu Ala Arg Leu Gln Val Asp Thr Ser Gly Ser Lys Ala Ala Phe
1               5                   10                  15
Glu Pro Ala Ile Asp Met Gln Lys Ser Val Pro Asn Lys Ala Leu Glu
            20                  25                  30
Leu Lys Asn Glu Gln Thr Leu Arg Ala Asp Glu Ile Leu Pro Ser Glu
        35                  40                  45
Ser Lys Gln Lys Asp Tyr Glu Glu Ser Ser Trp Asp Ser Glu Ser Leu
    50                  55                  60
Cys Glu Thr Val Ser Gln Lys Asp Val Cys Leu Pro Lys Ala Ala His
65                  70                  75                  80
Gln Lys Glu Ile Asp Lys Ile Asn Gly Lys Leu Glu Gly Ser Pro Val
                85                  90                  95
Lys Asp Gly Leu Leu Lys Ala Asn Cys Gly Met Lys Val Ser Ile Pro
            100                 105                 110
Thr Lys Ala Leu Glu Leu Met Asp Met Gln Thr Phe Lys Ala Glu Pro
        115                 120                 125
Pro Glu Lys Pro Ser Ala Phe Glu Pro Ala Ile Glu Met Gln Lys Ser
    130                 135                 140
Val Pro Asn Lys Ala Leu Glu Leu Lys Asn Glu Gln Thr Leu Arg Ala
145                 150                 155                 160
Asp Glu Ile Leu Pro Ser Glu Ser Lys Gln Lys Asp Tyr Glu Glu Ser
                165                 170                 175
Ser Trp Asp Ser Glu Ser Leu Cys Glu Thr Val Ser Gln Lys Asp Val
            180                 185                 190
Cys Leu Pro Lys Ala Ala His Gln Lys Glu Ile Asp Lys Ile Asn Gly
        195                 200                 205
Lys Leu Glu Gly Ser Pro Val Lys Asp Gly Leu Leu Lys Ala Asn Cys
    210                 215                 220
Gly Met Lys Val Ser Ile Pro Thr Lys Ala Leu Glu Leu Met Asp Met
225                 230                 235                 240
Gln Thr Phe Lys Ala Glu Pro Pro Glu Lys Pro Ser Ala Phe Glu Pro
            245                 250                 255
Ala Ile Glu Met Gln Lys Val Cys Ser Lys
            260                 265
```

```
<210> 1262
<211> 335
<212> PRT
<213> Homo sapiens

<400> 1262
Lys Glu Leu Glu Val Lys Gln Gln Leu Glu Gln Ala Leu Arg Ile Gln
1               5                   10                  15
Asp Ile Glu Leu Lys Ser Val Glu Ser Asn Leu Asn Gln Val Ser His
            20                  25                  30
Thr His Glu Asn Glu Asn Tyr Leu Leu His Glu Asn Cys Met Leu Lys
        35                  40                  45
Lys Glu Ile Ala Met Leu Lys Leu Glu Ile Ala Thr Leu Lys His Gln
    50                  55                  60
Tyr Gln Glu Lys Glu Asn Lys Tyr Phe Glu Asp Ile Lys Ile Leu Lys
65                  70                  75                  80
Glu Lys Asn Ala Glu Leu Gln Met Thr Leu Lys Leu Lys Glu Glu Ser
                85                  90                  95
Leu Thr Lys Arg Ala Ser Gln Tyr Ser Gly Gln Leu Lys Val Leu Ile
            100                 105                 110
Ala Glu Asn Thr Met Leu Thr Ser Lys Leu Lys Glu Lys Gln Asp Lys
        115                 120                 125
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Glu Ile Leu Glu Ala Glu Ile Glu Ser His His Pro Arg Leu Ala Ser
    130                 135                 140
Ala Val Gln Asp His Asp Gln Ile Val Thr Ser Arg Lys Ser Gln Glu
145                 150                 155                 160
Pro Ala Phe His Ile Ala Gly Asp Ala Cys Leu Gln Arg Lys Met Asn
                165                 170                 175
Val Asp Val Ser Ser Thr Ile Tyr Asn Asn Glu Val Leu His Gln Pro
                180                 185                 190
Leu Phe Glu Ala Gln Arg Lys Ser Lys Ser Leu Lys Ile Asn Xaa Asn
        195                 200                 205
Tyr Ala Gly Asp Ala Xaa Arg Glu Asn Thr Leu Val Ser Glu His Ala
    210                 215                 220
Gln Arg Asp Gln Arg Glu Thr Gln Cys Gln Met Lys Glu Ala Glu His
225                 230                 235                 240
Met Tyr Gln Asn Glu Gln Asp Asn Val Asn Lys His Thr Glu Gln Gln
                245                 250                 255
Glu Ser Xaa Asp Gln Lys Leu Phe Gln Leu Gln Ser Lys Asn Met Trp
                260                 265                 270
Leu Gln Gln Gln Leu Val His Ala His Lys Lys Ala Asp Asn Lys Ser
        275                 280                 285
Lys Ile Thr Ile Asp Ile His Phe Leu Glu Arg Lys Met Gln His His
        290                 295                 300
Leu Leu Lys Glu Lys Asn Glu Glu Ile Phe Asn Tyr Asn Asn His Leu
305                 310                 315                 320
Lys Asn Arg Ile Tyr Gln Tyr Glu Lys Arg Lys Gln Lys Gln Lys
                325                 330                 335


        <210> 1263
        <211> 225
        <212> PRT
        <213> Homo sapiens


        <400> 1263
Ala Glu Pro Pro Glu Lys Pro Ser Ala Phe Glu Pro Ala Ile Glu Met
1                   5                   10                  15
Gln Lys Ser Val Pro Asn Lys Ala Leu Glu Leu Lys Asn Glu Gln Thr
                20                  25                  30
Leu Arg Ala Asp Glu Ile Leu Pro Ser Glu Ser Lys Gln Lys Asp Tyr
        35                  40                  45
Glu Glu Ser Ser Trp Asp Ser Glu Ser Leu Cys Glu Thr Val Ser Gln
    50                  55                  60
Lys Asp Val Cys Leu Pro Lys Ala Ala His Gln Lys Glu Ile Asp Lys
65                  70                  75                  80
Ile Asn Gly Lys Leu Glu Gly Ser Pro Val Lys Asp Gly Leu Leu Lys
                85                  90                  95
Ala Asn Cys Gly Met Lys Val Ser Ile Pro Thr Lys Ala Leu Glu Leu
                100                 105                 110
Met Asp Met Gln Thr Phe Lys Ala Glu Pro Pro Glu Lys Pro Ile Cys
                115                 120                 125
Phe Glu Pro Ala Ile Glu Met Gln Lys Ser Val Pro Asn Lys Ala Leu
        130                 135                 140
Glu Leu Lys Asn Glu Gln Thr Leu Arg Ala Asp Glu Ile Leu Pro Ser
145                 150                 155                 160
Glu Ser Lys Gln Lys Asp Tyr Glu Glu Ser Ser Trp Asp Ser Glu Ser
                165                 170                 175
Leu Cys Glu Thr Val Ser Xaa Arg Met Cys Val Ser Gln Gly Cys Ala
                180                 185                 190
Ser Lys Arg Asn Arg Leu Asn Asn Gly Lys Leu Glu Xaa Leu Leu Leu
        195                 200                 205
Arg Xaa Leu Leu Lys Leu Thr Ala Asp Glu Ser Ser Xaa Pro Leu Lys
    210                 215                 220
Pro
225
```

```
<210> 1264
<211> 153
<212> PRT
<213> Homo sapiens


<400> 1264
Arg Gln Ser Leu Thr Leu Ser Leu Arg Leu Glu Cys Ser Ser Gly Ile
1               5                   10                  15
Ser Ala His Leu Pro Leu Gly Phe Lys Pro Phe Ser Cys Leu Ser Leu
            20                  25                  30
Pro Ser Ser Trp Asp Tyr Arg Gly Val His His His Asp His Leu Ile
            35                  40                  45
Phe Ser Cys Leu Phe Cys Phe Phe Gly Phe Cys Phe Phe Leu Xaa Trp
    50                  55                  60
Ser Leu Ser Leu Ser Pro Arg Leu Glu Cys Ser Ser Gly Ile Ser Ala
65                  70                  75                  80
His Leu Pro Pro Gly Phe Lys Pro Phe Ser Cys Leu Ser Leu Pro Ser
                85                  90                  95
Ser Trp Asp Tyr Arg Gly Val His His His Ala His Leu Ile Phe Ser
                100                 105                 110
Cys Phe Xaa Phe Leu Val Leu Phe Xaa Thr Xaa Ser Cys Ser Val Ala
            115                 120                 125
Gln Ala Gly Val Xaa Trp Arg Asp Leu Ser Ser Leu Gln Ala Pro Pro
    130                 135                 140
Pro Arg Phe Thr Pro Phe Cys Tyr Glu
145                 150


<210> 1265
<211> 223
<212> PRT
<213> Homo sapiens


<400> 1265
Ile Leu Pro Ser Glu Ser Lys Gln Lys Asp Tyr Glu Glu Ser Ser Trp
1               5                   10                  15
Asp Ser Glu Ser Leu Cys Glu Thr Val Ser Gln Lys Asp Val Cys Leu
            20                  25                  30
Pro Lys Ala Ala His Gln Lys Glu Ile Asp Lys Ile Asn Gly Lys Leu
        35                  40                  45
Glu Gly Ser Pro Val Lys Asp Gly Leu Leu Lys Ala Asn Cys Gly Met
    50                  55                  60
Lys Val Ser Ile Pro Thr Lys Ala Leu Glu Leu Met Asp Met Gln Thr
65                  70                  75                  80
Phe Lys Ala Glu Pro Pro Glu Lys Pro Ser Ala Phe Glu Pro Ala Ile
            85                  90                  95
Glu Met Gln Lys Ser Val Pro Asn Lys Ala Leu Glu Leu Lys Asn Glu
            100                 105                 110
Gln Thr Leu Arg Ala Asp Glu Ile Leu Pro Ser Glu Ser Lys Gln Lys
    115                 120                 125
Asp Tyr Glu Glu Ser Ser Trp Asp Ser Glu Ser Leu Cys Glu Thr Val
    130                 135                 140
Ser Gln Lys Asp Val Cys Leu Pro Lys Ala Ala His Gln Lys Glu Ile
145                 150                 155                 160
Asp Lys Ile Asn Gly Lys Leu Glu Gly Ser Pro Val Lys Asp Gly Leu
                165                 170                 175
Leu Lys Ala Asn Cys Gly Met Lys Val Ser Ile Pro Thr Lys Ala Leu
            180                 185                 190
Glu Leu Met Asp Met Gln Thr Phe Lys Ala Glu Pro Pro Glu Lys Pro
    195                 200                 205
Ser Ala Phe Glu Pro Ala Ile Glu Met Gln Lys Val Cys Xaa Lys
    210                 215                 220
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        <210> 1266
        <211> 91
        <212> PRT
        <213> Homo sapiens

        <400> 1266
Ser Phe Cys Leu Asp Ser Asp Gly Ser Ile Ser Ser Ala Leu Asn Val
1               5                   10              15
Cys Ser Phe Phe Asn Ser Lys Ala Leu Phe Gly Thr Asp Phe Cys Ile
            20                  25              30
Ser Met Ala Gly Ser Lys Ala Asp Gly Phe Ser Gly Gly Ser Ala Leu
        35                  40              45
Lys Val Cys Met Ser Ile Asn Ser Lys Ala Leu Val Gly Ile Glu Thr
        50                  55              60
Phe Ile Pro Gln Leu Ala Phe Arg Arg Pro Ser Leu Thr Gly Asp Pro
65              70                  75              80
Ser Asn Phe Pro Phe Ile Leu Ser Ile Ser Phe
            85                  90
```

```
        <210> 1267
        <211> 171
        <212> PRT
        <213> Homo sapiens

        <400> 1267
Asn Glu Gln Thr Leu Arg Ala Asp Glu Ile Leu Pro Ser Glu Ser Lys
1               5                   10              15
Gln Lys Asp Tyr Glu Glu Ser Ser Trp Asp Ser Glu Ser Leu Cys Glu
            20                  25              30
Thr Val Ser Gln Lys Asp Val Cys Leu Pro Lys Ala Thr His Gln Lys
        35                  40              45
Glu Ile Asp Lys Ile Asn Gly Lys Leu Glu Glu Ser Pro Asp Asn Asp
        50                  55              60
Gly Phe Leu Lys Ala Pro Cys Arg Met Lys Val Ser Ile Pro Thr Lys
65              70                  75              80
Ala Leu Glu Leu Met Asp Met Gln Thr Phe Lys Ala Glu Pro Pro Glu
            85                  90                  95
Lys Pro Ser Ala Phe Glu Pro Ala Ile Glu Met Gln Lys Ser Val Pro
            100                 105                 110
Asn Lys Ala Leu Glu Leu Lys Asn Glu Gln Thr Leu Arg Ala Asp Gln
        115                 120                 125
Met Phe Pro Ser Glu Ser Lys Gln Lys Lys Val Glu Glu Asn Ser Trp
        130                 135                 140
Asp Ser Glu Ser Leu Arg Glu Thr Val Ser Gln Lys Asp Val Cys Val
145                 150                 155                 160
Pro Arg Leu His Ile Lys Lys Lys Trp Ile Lys
            165                 170
```

```
        <210> 1268
        <211> 169
        <212> PRT
        <213> Homo sapiens

        <400> 1268
Gln Lys Asp Tyr Glu Glu Ser Ser Trp Asp Ser Glu Ser Leu Cys Glu
1               5                   10              15
Thr Val Ser Gln Lys Asp Val Cys Leu Pro Lys Ala Ala His Gln Lys
            20                  25              30
Glu Ile Asp Lys Ile Asn Gly Lys Leu Glu Gly Ser Pro Val Lys Asp
        35                  40              45
Gly Leu Leu Lys Ala Asn Cys Gly Met Lys Val Ser Ile Pro Thr Lys
        50                  55              60
Ala Leu Glu Leu Met Asp Met Gln Thr Phe Lys Ala Glu Pro Pro Glu
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        65                   70                   75                   80
        Lys Pro Ser Ala Phe Glu Pro Ala Ile Glu Met Gln Lys Ser Val Pro
                        85                   90                   95
        Asn Lys Ala Leu Glu Leu Lys Asn Glu Gln Thr Leu Arg Ala Asp Glu
5                       100                  105                  110
        Ile Leu Pro Ser Glu Ser Lys Gln Lys Asp Tyr Glu Glu Ser Ser Trp
                        115                  120                  125
        Asp Ser Glu Ser Leu Cys Glu Thr Val Ser Gln Lys Asp Val Cys Leu
                130                  135                  140
10      Pro Lys Ala Ala His Gln Lys Glu Ile Asp Lys Ile Asn Gly Lys Leu
        145                  150                  155                  160
        Glu Gly Ser Pro Val Lys Asp Gly Phe
                        165


15          <210> 1269
            <211> 196
            <212> PRT
            <213> Homo sapiens


20          <400> 1269
        Arg Gln Lys Leu Asn His Xaa His Pro Arg Leu Ala Ser Ala Gly Gln
        1               5                   10                  15
        Ala His Asp Gln Ile Val Thr Ser Arg Lys Ser Gln Glu Pro Ala Phe
                        20                  25                  30
25      His Ile Ala Gly Asp Ala Cys Leu Gln Arg Lys Met Asn Val Asp Val
                        35                  40                  45
        Ser Ser Thr Ile Tyr Asn Asn Glu Val Leu His Gln Pro Leu Xaa Glu
                50                  55                  60
        Ala Gln Arg Lys Ser Lys Ser Leu Lys Ile Asn Leu Asn Tyr Ala Gly
30      65                  70                  75                  80
        Asp Ala Xaa Arg Glu Asn Thr Leu Val Ser Glu His Ala Gln Arg Asp
                        85                  90                  95
        Gln Arg Glu Thr Gln Cys Gln Met Lys Glu Ala Glu His Met Tyr Gln
                        100                 105                 110
        Asn Glu Gln Asp Asn Val Asn Lys His Thr Glu Gln Gln Glu Xaa Xaa
35                      115                 120                 125
        Asp Gln Lys Leu Phe Gln Leu Gln Ser Lys Asn Met Trp Leu Gln Gln
                        130                 135                 140
        Gln Leu Val His Ala His Lys Lys Ala Asp Asn Lys Ser Lys Ile Thr
40      145                 150                 155                 160
        Ile Asp Ile His Phe Leu Glu Arg Lys Met Gln His His Leu Leu Lys
                        165                 170                 175
        Glu Lys Asn Glu Glu Ile Phe Asn Tyr Asn Asn His Leu Lys Asn Arg
                        180                 185                 190
45      Ile Tyr Gln Tyr
                        195


            <210> 1270
            <211> 106
50          <212> PRT
            <213> Homo sapiens


            <400> 1270
        Ile Ser Pro His Phe Ser Leu Leu Gly Asp Asp Val Ala Phe Ser Ser
55      1               5                   10                  15
        Gln Glu Asn Glu Tyr Gln Leu Leu Ser Cys Phe Cys Cys Gln Leu Ser
                        20                  25                  30
        Tyr Val His Glu Leu Ile Ala Val Glu Ala Thr Tyr Phe Cys Phe Val
                35                  40                  45
60      Val Glu Ile Ile Ser Asp Leu Xaa Thr Pro Ala Val Gln Cys Val Cys
                50                  55                  60
        Ser His Tyr Leu Val Arg Phe Asp Thr Cys Val Gln Leu Pro Ser Phe
        65                  70                  75                  80
```

Asp Thr Val Phe His Val Gly Leu Phe Val His Val Leu Lys Pro Met
                85   90   95
Tyr Phe Leu Leu Xaa His Leu Arg His Asn
            100   105

          <210> 1271
          <211> 168
          <212> PRT
          <213> Homo sapiens

          <400> 1271
Asn Glu Gln Thr Leu Arg Ala Asp Glu Ile Leu Pro Ser Glu Ser Lys
1   5   10   15
Gln Lys Asp Tyr Glu Glu Ser Ser Trp Asp Ser Glu Ser Leu Cys Glu
            20   25   30
Thr Val Ser Gln Lys Asp Val Cys Leu Pro Lys Ala Ala His Gln Lys
            35   40   45
Glu Ile Asp Lys Ile Asn Gly Lys Leu Glu Gly Ser Pro Val Lys Asp
        50   55   60
Gly Leu Leu Lys Ala Asn Cys Gly Met Lys Val Ser Ile Pro Thr Lys
65   70   75   80
Ala Leu Glu Leu Met Asp Met Gln Thr Phe Lys Ala Glu Pro Pro Glu
                85   90   95
Lys Pro Ser Ala Phe Glu Pro Ala Ile Glu Met Gln Lys Ser Val Pro
            100   105   110
Asn Lys Ala Leu Glu Leu Lys Asn Glu Gln Thr Leu Arg Ala Asp Glu
            115   120   125
Ile Leu Pro Ser Glu Ser Lys Gln Lys Asp Tyr Glu Glu Ser Ser Trp
        130   135   140
Asp Ser Glu Ser Leu Cys Glu Thr Val Ser Xaa Lys Asp Val Cys Phe
145   150   155   160
Pro Arg Leu Arg Ile Lys Lys Lys
                165

          <210> 1272
          <211> 91
          <212> PRT
          <213> Homo sapiens

          <400> 1272
Ser Phe Cys Leu Asp Ser Asp Gly Ser Ile Ser Ser Ala Leu Asn Val
1   5   10   15
Cys Ser Phe Phe Asn Ser Lys Ala Leu Phe Gly Thr Asp Phe Cys Ile
            20   25   30
Ser Met Ala Gly Ser Lys Ala Asp Gly Phe Ser Gly Gly Ser Ala Leu
            35   40   45
Lys Val Cys Met Ser Ile Asn Ser Lys Ala Leu Val Gly Ile Glu Thr
        50   55   60
Phe Ile Pro Gln Leu Ala Phe Arg Arg Pro Ser Leu Thr Gly Asp Pro
65   70   75   80
Ser Asn Phe Pro Phe Ile Leu Ser Ile Ser Phe
                85   90

          <210> 1273
          <211> 177
          <212> PRT
          <213> Homo sapiens

          <400> 1273
Ser Asn Trp Thr Ser Arg Lys Ser Gln Glu Pro Ala Phe His Xaa Ala
1   5   10   15
Gly Asp Ala Cys Leu Gln Arg Lys Met Asn Val Asp Val Ser Ser Thr
            20   25   30

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     Ile Tyr Asn Asn Glu Val Leu His Gln Pro Leu Xaa Xaa Ala Gln Arg
             35                      40                  45
     Lys Ser Lys Ser Leu Lys Ile Asn Leu Asn Tyr Ala Gly Asp Ala Xaa
         50                      55                  60
  5  Arg Glu Asn Thr Leu Val Ser Glu His Ala Gln Arg Asp Gln Arg Glu
     65                  70                  75                      80
     Xaa Gln Cys Gln Met Lys Glu Ala Glu Xaa Met Tyr Gln Asn Glu Gln
                     85                  90                  95
     Asp Asn Val Asn Lys His Thr Glu Gln Gln Glu Ser Xaa Asp Gln Lys
 10                 100                 105                 110
     Leu Phe Gln Leu Gln Ser Lys Asn Met Trp Leu Gln Gln Gln Leu Val
                 115                 120                 125
     His Ala His Lys Lys Ala Asp Asn Lys Ser Lys Ile Thr Ile Asp Ile
             130                 135                 140
 15  His Phe Leu Glu Arg Lys Met Gln His His Xaa Leu Lys Glu Lys Asn
     145                 150                 155                 160
     Glu Glu Ile Phe Asn Tyr Asn Asn His Leu Lys Asn Arg Ile Tyr Gln
                     165                 170                 175
     Tyr
 20


             <210> 1274
             <211> 106
             <212> PRT
 25          <213> Homo sapiens


             <400> 1274
     Ile Ser Pro His Phe Ser Leu Leu Gly Xaa Asp Val Ala Phe Ser Ser
     1               5                   10                  15
 30  Gln Glu Asn Glu Tyr Gln Leu Leu Ser Cys Phe Cys Cys Gln Leu Ser
                     20                  25                  30
     Tyr Val His Glu Leu Ile Ala Val Glu Ala Thr Tyr Phe Cys Phe Val
             35                  40                  45
     Val Glu Ile Ile Ser Asp Leu Xaa Thr Pro Ala Val Gln Cys Val Cys
 35      50                  55                  60
     Ser His Tyr Leu Val Arg Phe Asp Thr Xaa Val Gln Leu Pro Ser Phe
     65                  70                  75                      80
     Asp Thr Xaa Phe His Val Gly Leu Phe Val His Val Leu Lys Pro Met
                     85                  90                  95
 40  Tyr Phe Leu Leu Xaa His Leu Arg His Asn
                     100                 105


             <210> 1275
             <211> 181
 45          <212> PRT
             <213> Homo sapiens


             <400> 1275
     Glu Ile Leu Glu Ala Glu Ile Glu Ser His His Pro Arg Leu Ala Ser
 50  1               5                   10                  15
     Ala Val Gln Asp His Asp Gln Ile Val Thr Ser Arg Lys Ser Gln Glu
                     20                  25                  30
     Pro Ala Phe His Ile Ala Gly Asp Ala Cys Leu Gln Arg Lys Met Asn
             35                  40                  45
 55  Val Asp Val Ser Ser Thr Ile Tyr Asn Asn Glu Val Leu His Gln Pro
         50                  55                  60
     Leu Ser Glu Ala Gln Arg Lys Ser Lys Ser Leu Lys Ile Asn Leu Asn
     65                  70                  75                      80
     Tyr Ala Gly Asp Ala Leu Arg Glu Asn Thr Leu Val Ser Glu His Ala
 60                 85                  90                  95
     Gln Arg Asp Gln Arg Glu Thr Gln Cys Gln Met Lys Glu Ala Glu His
                     100                 105                 110
     Met Tyr Gln Asn Glu Gln Asp Asn Val Asn Lys His Thr Glu Gln Gln
```

```
              115                    120                    125
     Glu Ser Leu Asp Gln Lys Leu Phe Gln Leu Gln Ser Lys Asn Met Trp
              130                    135                    140
     Leu Gln Gln Gln Leu Val His Ala His Lys Lys Ala Asp Asn Lys Ser
              145                    150                    155                    160
     Lys Ile Gln Leu Ile Phe Ile Phe Leu Arg Gly Lys Cys Asn Ile Ser
                           165                    170                    175
     Pro Lys Arg Glu Lys
                       180
```

```
             <210> 1276
             <211> 57
             <212> PRT
             <213> Homo sapiens

             <400> 1276
     Ser Phe Cys Xaa Pro Gln Ala Val Xaa Pro Phe Ser Val Phe Val His
     1                   5                   10                  15
     Leu Ser Xaa Ile His Ser Asp Leu Val Xaa Thr Phe Ser Ile Phe Ile
                     20                  25                  30
     Lys Leu Ser Leu Thr Val Leu Thr Leu Ile Ala Leu Met Leu Gln Asp
                 35                  40                  45
     Val Phe Ser Ser Trp Cys Arg Thr Ile
                 50                  55
```

```
             <210> 1277
             <211> 146
             <212> PRT
             <213> Homo sapiens

             <400> 1277
     Phe Phe Glu Ala Gln Lys Xaa Ile Pro Lys Ser Leu Lys Ile Ile Phe
     1                   5                   10                  15
     Asn Tyr Ala Gly Asp Gly Phe Lys Arg Lys Xaa Met Gly Phe Arg Thr
                 20                  25                  30
     Cys Thr Lys Ser Gln Arg Glu Thr Gln Cys Gln Met Lys Glu Xaa Glu
                 35                  40                  45
     His Met Phe Gln Asn Glu Gln Asp Asn Val Asn Lys His Ile Glu Gln
                 50                  55                  60
     Gln Glu Ser Xaa Asp Gln Lys Leu Phe Gln Leu Gln Ser Lys Asn Met
     65                  70                  75                  80
     Trp Leu Gln Gln Gln Leu Val His Ala His Lys Lys Ala Xaa Asn Lys
                     85                  90                  95
     Ser Lys Ile Thr Ile Asp Ile His Phe Leu Glu Arg Lys Met Gln His
                 100                 105                 110
     His Leu Leu Lys Glu Lys Asn Glu Glu Ile Phe Asn Tyr Asn Asn His
                 115                 120                 125
     Leu Lys Asn Arg Ile Tyr Gln Tyr Glu Lys Glu Lys Ala Glu Thr Glu
                 130                 135                 140
     Asn Ser
     145
```

```
             <210> 1278
             <211> 184
             <212> PRT
             <213> Homo sapiens

             <400> 1278
     Lys Glu Leu Glu Val Lys Gln Gln Leu Glu Gln Ala Leu Arg Ile Gln
     1                   5                   10                  15
     Asp Ile Glu Leu Lys Ser Val Glu Ser Asn Leu Asn Gln Val Ser His
                 20                  25                  30
     Thr His Glu Asn Glu Asn Tyr Leu Leu His Glu Asn Cys Met Leu Lys
```

```
               35                    40                    45
     Lys Glu Ile Ala Met Leu Lys Leu Glu Ile Ala Thr Leu Lys His Gln
               50                    55                    60
     Tyr Gln Glu Lys Glu Asn Lys Tyr Phe Glu Asp Ile Lys Ile Leu Lys
  5  65                    70                    75                    80
     Glu Lys Asn Ala Glu Leu Gln Met Thr Leu Lys Leu Lys Glu Glu Ser
                         85                .   90                    95
     Leu Thr Lys Arg Ala Ser Gln Tyr Ser Gly Gln Leu Lys Val Leu Ile
                        100                   105                   110
 10  Ala Glu Asn Thr Met Leu Thr Ser Lys Leu Lys Glu Lys Gln Asp Lys
                        115                   120                   125
     Glu Ile Leu Glu Ala Glu Ile Glu Ser His His Pro Arg Leu Ala Ser
                    130                   135                   140
     Ala Val Gln Asp His Asp Gln Ile Val Thr Ser Arg Lys Ser Gln Glu
 15  145                   150                   155                   160
     Pro Ala Phe His Ile Ala Gly Asp Ala Cys Leu Gln Arg Lys Met Asn
                        165                   170                   175
     Val Asp Val Ser Ser Thr Asp Ile
                        180
 20
          <210> 1279
          <211> 220
          <212> PRT
          <213> Homo sapiens                                      σ
 25
          <400> 1279
     Ala Phe Glu Pro Ala Ile Asp Met Gln Lys Ser Val Pro Asn Lys Ala
     1               5                   10                    15
     Leu Glu Leu Lys Asn Glu Gln Thr Leu Arg Ala Asp Glu Ile Leu Pro
 30                  20                    25                    30
     Ser Glu Ser Lys Gln Lys Asp Tyr Glu Glu Ser Ser Trp Asp Ser Glu
                    35                    40                    45
     Ser Leu Cys Glu Thr Val Ser Gln Lys Asp Val Cys Leu Pro Lys Ala
                    50                    55                    60
 35  Ala His Gln Lys Glu Ile Asp Lys Ile Asn Gly Lys Leu Glu Gly Ser
     65                    70                    75                    80
     Pro Val Lys Asp Gly Leu Leu Lys Ala Asn Cys Gly Met Lys Val Ser
                        85                    90                    95
     Ile Pro Thr Lys Ala Leu Glu Leu Met Asp Met Gln Thr Phe Lys Ala
 40                  100                   105                   110
     Glu Pro Pro Glu Lys Pro Ser Ala Phe Glu Pro Ala Ile Glu Met Gln
                    115                   120                   125
     Lys Ser Val Pro Asn Lys Ala Leu Glu Leu Lys Asn Glu Gln Thr Leu
                    130                   135                   140
 45  Arg Ala Asp Glu Ile Leu Pro Ser Glu Ser Lys Gln Lys Asp Tyr Glu
     145                   150                   155                   160
     Glu Ser Ser Trp Asp Ser Glu Ser Leu Cys Glu Thr Val Ser Arg Arg
                        165                   170                   175
     Met Cys Val Tyr Pro Xaa Leu Ala Xaa Gln Lys Glu Ile Asp Lys Ile
 50                  180                   185                   190
     Asn Gly Lys Leu Glu Xaa Arg Tyr Ala Ala Glu Phe Lys Thr Phe Phe
                    195                   200                   205
     Ala Met Ile Arg Ala Ser Val Lys Glu Gly Leu Leu
         210                   215                   220
 55
          <210> 1280
          <211> 195
          <212> PRT
          <213> Homo sapiens
 60
          <400> 1280
     Leu Cys Glu Thr Val Ser Gln Lys Asp Val Cys Leu Pro Lys Ala Ala
     1               5                   10                    15
```

```
    His Gln Lys Glu Ile Asp Lys Ile Asn Gly Lys Leu Glu Gly Ser Pro
              20                      25                  30
    Val Lys Asp Gly Leu Leu Lys Ala Asn Cys Gly Met Lys Val Ser Ile
              35                      40                  45
 5  Pro Thr Lys Ala Leu Glu Leu Met Asp Met Gln Thr Phe Lys Ala Glu
              50                      55                  60
    Pro Pro Glu Lys Pro Ser Ala Phe Glu Pro Ala Ile Glu Met Gln Lys
    65                      70                  75                  80
    Ser Val Pro Asn Lys Ala Leu Glu Leu Lys Asn Glu Gln Thr Leu Arg
10            85                      90                  95
    Ala Asp Glu Ile Leu Pro Ser Glu Ser Lys Gln Lys Asp Tyr Glu Glu
                  100                     105                 110
    Ser Ser Trp Asp Ser Glu Ser Leu Cys Glu Thr Val Ser Gln Lys Asp
              115                     120                 125
15  Val Cys Leu Pro Lys Ala Ala His Gln Lys Glu Ile Asp Xaa Ile Xaa
              130                     135                 140
    Gly Lys Leu Glu Gly Ser Pro Val Lys Asp Gly Leu Leu Lys Ala Asn
    145                 150                     155                 160
    Cys Gly Met Lys Val Ser Ile Ser Thr Lys Ala Leu Arg Ile Asp Gly
20                  165                     170                 175
    His Ala Asn Phe Gln Ser Arg Ala Xaa Arg Glu Ala Ile Cys Leu Arg
                  180                     185                 190
    Ala Cys His
              195
25
        <210> 1281
        <211> 209
        <212> PRT
        <213> Homo sapiens
30
        <400> 1281
    Asn Leu Asn Gln Val Ser His Thr His Glu Asn Glu Asn Tyr Leu Leu
    1                   5                   10                  15
    His Glu Asn Cys Met Leu Lys Lys Glu Ile Ala Met Leu Lys Leu Glu
35            20                      25                  30
    Ile Ala Thr Leu Lys His Gln Tyr Gln Glu Lys Glu Asn Lys Tyr Phe
              35                      40                  45
    Glu Asp Ile Lys Ile Leu Lys Glu Lys Asn Ala Glu Leu Gln Met Thr
              50                      55                  60
40  Leu Lys Leu Lys Glu Glu Ser Leu Thr Lys Arg Ala Ser Gln Tyr Ser
    65                      70                  75                  80
    Gly Gln Leu Lys Val Leu Ile Ala Glu Asn Thr Met Leu Thr Ser Lys
                  85                      90                  95
    Leu Lys Glu Lys Gln Asp Lys Glu Ile Leu Glu Ala Glu Ile Glu Ser
45                  100                     105                 110
    His His Pro Arg Leu Ala Ser Ala Val Gln Asp His Asp Gln Ile Val
              115                     120                 125
    Thr Ser Arg Lys Ser Gln Glu Pro Ala Phe His Ile Ala Gly Asp Ala
              130                     135                 140
    Cys Leu Gln Arg Lys Met Asn Val Asp Val Ser Ser Thr Ile Tyr Asn
50  145                 150                     155                 160
    Asn Glu Val Leu His Gln Pro Leu Ser Glu Ala Gln Arg Lys Ser Lys
                  165                     170                 175
    Ser Leu Lys Ile Asn Leu Asn Tyr Ala Gly Asp Ala Leu Arg Glu Asn
55                  180                     185                 190
    His Trp Phe Gln Asn Met Xaa Lys Glu Thr Asn Val Lys His Ser Val
              195                     200                 205
    Lys

60
        <210> 1282
        <211> 120
        <212> PRT
```

```
        <213> Homo sapiens

        <400> 1282
   Ser Tyr Asn Phe Ala Ala Lys Asn Ser Ala Val Val Pro Gln Gly Phe
5  1               5                   10                  15
   Met Ile Lys Ser Lys Leu Leu Gly Val Val Tyr Arg Val Leu Arg Ile
               20                  25                  30
   Trp Thr Phe Leu Leu Leu His Val Phe Thr Gly Leu Phe Phe Gly Leu
               35                  40                  45
10 Glu His Phe Ser Gln Val Leu Gly Leu Leu Pro Gln Phe Leu Ser Leu
               50                  55                  60
   Ser Pro Phe Cys Pro Thr Pro Trp Leu Gly Leu Ser Leu Pro Leu Thr
   65              70                  75                  80
   Pro Pro Cys Arg Tyr Leu Ser Gln Ser Leu Ser His Arg Ile Ile Cys
15              85                  90                  95
   Phe Phe Thr Cys Leu Phe Leu Pro Leu Asn His Glu Val Phe Glu Gly
               100                 105                 110
   Arg Val Arg Gly Leu Val Ile Phe
               115                 120
20
        <210> 1283
        <211> 81
        <212> PRT
        <213> Homo sapiens
25
        <400> 1283
   Lys Ile Thr Lys Pro Leu Thr Arg Pro Ser Lys Thr Ser Trp Phe Lys
   1               5                   10                  15
   Gly Arg Asn Arg Gln Val Lys Lys Gln Ile Ile Leu Cys Asp Arg Asp
30              20                  25                  30
   Cys Asp Lys Tyr Leu Gln Gly Gly Val Ser Gly Arg Leu Asn Pro Ser
               35                  40                  45
   Gln Gly Val Gly Gln Lys Gly Glu Arg Glu Arg Asn Trp Gly Arg Ser
               50                  55                  60
35 Pro Asn Thr Trp Glu Lys Cys Ser Lys Pro Lys Asn Ser Pro Val Asn
   65              70                  75                  80
   Thr


40      <210> 1284
        <211> 181
        <212> PRT
        <213> Homo sapiens

45      <400> 1284
   Gln Asp His Asp Gln Ile Val Thr Ser Arg Lys Ser Gln Glu Pro Ala
   1               5                   10                  15
   Phe His Ile Ala Gly Asp Ala Cys Leu Gln Arg Lys Met Asn Val Asp
               20                  25                  30
50 Val Ser Ser Thr Ile Tyr Asn Asn Glu Val Leu His Gln Pro Leu Phe
               35                  40                  45
   Glu Ala Gln Arg Lys Ser Lys Ser Leu Lys Ile Asn Xaa Asn Tyr Ala
               50                  55                  60
   Gly Asp Ala Xaa Arg Glu Asn Thr Leu Val Ser Glu His Ala Gln Arg
55 65              70                  75                  80
   Asp Gln Arg Glu Thr Gln Cys Gln Met Lys Glu Ala Glu His Met Tyr
               85                  90                  95
   Gln Asn Glu Gln Asp Asn Val Asn Lys His Thr Glu Gln Gln Glu Ser
               100                 105                 110
   Xaa Asp Gln Lys Leu Phe Gln Leu Gln Ser Lys Asn Met Trp Leu Gln
60             115                 120                 125
   Gln Gln Leu Val His Ala His Lys Lys Ala Asp Asn Lys Ser Lys Ile
               130                 135                 140
```

```
Thr Ile Asp Ile His Phe Leu Glu Arg Lys Met Gln His His Leu Leu
145                 150                 155                 160
Lys Glu Lys Asn Glu Glu Ile Phe Asn Tyr Asn Asn His Leu Lys Asn
                165                 170                 175
Arg Ile Tyr Gln Tyr
                180


        <210> 1285
        <211> 106
        <212> PRT
        <213> Homo sapiens


        <400> 1285
Ile Ser Pro His Phe Ser Leu Leu Gly Asp Asp Val Ala Phe Ser Ser
1                 5                 10                 15
Gln Glu Asn Glu Tyr Gln Leu Leu Ser Cys Phe Cys Cys Gln Leu Ser
                20                25                30
Tyr Val His Glu Leu Ile Ala Val Glu Ala Thr Tyr Phe Cys Phe Val
                35                40                45
Val Glu Ile Ile Ser Asp Leu Xaa Thr Pro Ala Val Gln Cys Val Cys
            50                55                60
Ser His Tyr Leu Val Arg Phe Asp Thr Cys Val Gln Leu Pro Ser Phe
65                 70                 75                 80
Asp Thr Val Phe His Val Gly Leu Phe Val His Val Leu Lys Pro Met
                85                90                95
Tyr Phe Leu Leu Xaa His Leu Arg His Asn
                100               105


        <210> 1286
        <211> 105
        <212> PRT
        <213> Homo sapiens


        <400> 1286
Ser Phe Cys Leu Asp Ser Asp Gly Ser Ile Ser Ser Ala Leu Asn Val
1                 5                 10                15
Cys Ser Phe Phe Asn Ser Lys Ala Leu Phe Gly Thr Asp Phe Cys Ile
                20                25                30
Ser Met Ala Gly Ser Lys Ala Asp Gly Phe Ser Gly Gly Ser Ala Leu
            35                40                45
Lys Val Cys Met Ser Ile Asn Ser Lys Ala Leu Val Gly Ile Glu Thr
    50                55                60
Phe Ile Pro Gln Leu Ala Phe Arg Arg Pro Ser Leu Thr Gly Asp Leu
65                 70                 75                 80
Ile Ile Ala Glu Asn Val Leu Asn Ser Ala Ala Tyr Leu Pro Ser Asn
                85                90                95
Phe Pro Phe Ile Leu Ser Ile Ser Phe
                100               105


        <210> 1287
        <211> 229
        <212> PRT
        <213> Homo sapiens


        <400> 1287
Cys Val Ser Leu Lys Pro Pro Glu Lys Pro Ser Ala Phe Glu Pro Ala
1                 5                 10                15
Ile Glu Met Gln Lys Ser Val Pro Asn Lys Ala Leu Glu Leu Lys Asn
                20                25                30
Glu Gln Thr Leu Arg Ala Asp Glu Ile Leu Pro Ser Glu Ser Lys Gln
            35                40                45
Lys Asp Tyr Glu Glu Ser Ser Trp Asp Ser Glu Ser Leu Cys Glu Thr
        50                55                60
```

```
Val Ser Gln Lys Asp Val Cys Leu Pro Lys Ala Ala His Gln Lys Glu
65              70              75                      80
Ile Asp Lys Ile Asn Gly Lys Leu Glu Gly Arg Tyr Ala Ala Glu Phe
                85              90                      95
Arg Thr Phe Ser Ala Met Ile Arg Ser Pro Val Lys Asp Gly Leu Leu
            100             105             110
Lys Ala Asn Cys Gly Met Lys Val Ser Ile Pro Thr Lys Ala Leu Glu
            115             120             125
Leu Met Asp Met Gln Thr Phe Lys Ala Glu Pro Pro Glu Lys Pro Ser
        130             135             140
Ala Phe Glu Pro Ala Ile Glu Met Gln Lys Ser Val Pro Asn Lys Ala
145             150             155                     160
Leu Glu Leu Lys Asn Glu Gln Thr Leu Arg Ala Asp Glu Ile Leu Pro
                165             170             175
Ser Glu Ser Lys Gln Lys Asp Tyr Glu Glu Ser Ser Trp Asp Ser Glu
                180             185             190
Ser Leu Cys Glu Thr Val Ser Gln Lys Asp Val Cys Leu Pro Lys Ala
            195             200             205
Ala His Gln Lys Glu Ile Asp Lys Ile Asn Gly Lys Leu Glu Ala Ile
        210             215             220
Arg Asp Gly Ser Thr
225
```

```
        <210> 1288
        <211> 174
        <212> PRT
        <213> Homo sapiens


        <400> 1288
Cys Val Ser Leu Lys Pro Pro Glu Lys Pro Ser Ala Phe Glu Pro Ala
1               5               10              15
Ile Glu Met Gln Lys Ser Val Pro Asn Lys Ala Leu Glu Leu Lys Asn
                20              25              30
Glu Gln Thr Leu Arg Ala Asp Glu Ile Leu Pro Ser Glu Ser Lys Gln
            35              40              45
Lys Asp Tyr Glu Glu Ser Ser Trp Asp Ser Glu Ser Leu Cys Glu Thr
        50              55              60
Val Ser Gln Lys Asp Val Cys Leu Pro Lys Ala Ala His Gln Lys Glu
65              70              75                      80
Ile Asp Lys Ile Asn Gly Lys Leu Glu Gly Arg Tyr Ala Ala Glu Phe
                85              90                      95
Arg Thr Phe Ser Ala Met Ile Arg Ser Pro Val Lys Asp Gly Leu Leu
            100             105             110
Lys Ala Asn Cys Gly Met Lys Val Ser Ile Pro Thr Lys Ala Leu Glu
            115             120             125
Leu Met Asp Met Gln Thr Phe Lys Ala Glu Pro Pro Glu Lys Pro Ser
        130             135             140
Ala Phe Glu Pro Xaa Ile Gly Lys Pro Lys Val Cys Xaa Gln Ile Lys
145             150             155                     160
Ala Phe Gly Ile Gly Arg Met Asp Gln Xaa Leu Gly Ala Arg
                165             170
```

```
        <210> 1289
        <211> 108
        <212> PRT
        <213> Homo sapiens


        <400> 1289
Pro Phe Gly Trp Xaa Ser Glu Gly Xaa Tyr Ser His Arg Ala Pro Xaa
1               5               10              15
Gly Trp Ser Ile Leu Pro Ile Pro Lys Ala Phe Ile Trp Xaa Gln Thr
                20              25              30
Phe Gly Phe Pro Met Xaa Gly Ser Lys Ala Asp Gly Phe Ser Gly Gly
```

```
                35                    40                    45
        Ser Ala Leu Lys Val Cys Met Ser Ile Asn Ser Lys Ala Leu Val Gly
            50                    55                    60
        Ile Glu Thr Phe Ile Pro Gln Leu Ala Phe Arg Arg Pro Ser Leu Thr
    5   65                    70                    75                    80
        Gly Asp Leu Ile Ile Ala Glu Asn Val Leu Asn Ser Ala Ala Tyr Leu
                        85                    90                    95
        Pro Ser Asn Phe Pro Phe Ile Leu Ser Ile Ser Phe
                        100                   105
   10
            <210> 1290
            <211> 117
            <212> PRT
            <213> Homo sapiens
   15
            <400> 1290
        Ile Gln Gln His Ile Tyr Leu Leu Ile Phe His Leu Phe Tyr Leu Phe
            1               5                   10                    15
        Leu Phe Asp Ala Gln Pro Trp Val Asn Thr His Pro Ser Val Lys Gln
   20                   20                    25                    30
        Ser His Arg Asp Ser Gln Asn Pro Lys Asn Phe Leu His Ser Pro Phe
                        35                    40                    45
        Val Trp Ile Leu Met Gly Val Ser His Leu Leu Ser Met Phe Val His
                50                    55                    60
   25   Ser Ser Ile Pro Arg Leu Tyr Leu Glu Gln Thr Phe Ala Phe Gln Trp
        65                    70                    75                    80
        Gln Ala Arg Arg Gln Met Ala Ser Arg Glu Ala Leu Met Lys His Ile
                        85                    90                    95
        Arg Ile Thr Tyr Ile Ile Pro Phe Ile Leu Phe Phe Asn Ile Ala Tyr
   30                   100                   105                   110
        Leu Trp Lys Gly Thr
                    115


            <210> 1291
   35       <211> 189
            <212> PRT
            <213> Homo sapiens


            <400> 1291
   40   Ile Leu Pro Ser Glu Ser Lys Gln Lys Asp Tyr Glu Glu Ser Ser Trp
        1               5                   10                    15
        Asp Ser Glu Ser Leu Cys Glu Thr Val Ser Gln Lys Asp Val Cys Leu
                    20                    25                    30
        Pro Lys Ala Ala His Gln Lys Glu Ile Asp Lys Ile Asn Gly Lys Leu
   45               35                    40                    45
        Glu Gly Arg Tyr Ala Ala Glu Phe Arg Thr Phe Ser Ala Met Ile Arg
                50                    55                    60
        Ser Pro Val Lys Asp Gly Leu Leu Lys Ala Asn Cys Gly Met Lys Val
        65                    70                    75                    80
   50   Ser Ile Pro Thr Lys Ala Leu Glu Leu Met Asp Met Gln Thr Phe Lys
                        85                    90                    95
        Ala Glu Pro Pro Glu Lys Pro Ser Ala Phe Glu Pro Ala Ile Glu Met
                        100                   105                   110
        Gln Lys Ser Val Pro Asn Lys Ala Leu Glu Leu Lys Asn Glu Gln Thr
   55               115                   120                   125
        Leu Arg Ala Asp Glu Ile Leu Pro Ser Glu Ser Lys Gln Lys Asp Tyr
                130                   135                   140
        Glu Glu Ser Ser Trp Asp Ser Glu Ser Leu Cys Glu Thr Val Ser Gln
        145                   150                   155                   160
   60   Lys Asp Val Cys Leu Pro Lys Ala Ala His Gln Lys Glu Ile Asp Lys
                        165                   170                   175
        Ile Asn Gly Lys Leu Glu Ala Ile Arg Asp Gly Ser Thr
                    180                   185
```

```
        <210> 1292
        <211> 105
        <212> PRT
        <213> Homo sapiens


        <400> 1292
Ser Phe Cys Leu Asp Ser Asp Gly Ser Ile Ser Ser Ala Leu Asn Val
1               5                   10                  15
Cys Ser Phe Phe Asn Ser Lys Ala Leu Phe Gly Thr Asp Phe Cys Ile
            20                  25                  30
Ser Met Ala Gly Ser Lys Ala Asp Gly Phe Ser Gly Gly Ser Ala Leu
        35                  40                  45
Lys Val Cys Met Ser Ile Asn Ser Lys Ala Leu Val Gly Ile Glu Thr
    50                  55                  60
Phe Ile Pro Gln Leu Ala Phe Arg Arg Pro Ser Leu Thr Gly Asp Leu
65                  70                  75                  80
Ile Ile Ala Glu Asn Val Leu Asn Ser Ala Ala Tyr Leu Pro Ser Asn
                85                  90                  95
Phe Pro Phe Ile Leu Ser Ile Ser Phe
                100                 105


        <210> 1293
        <211> 181
        <212> PRT
        <213> Homo sapiens


        <400> 1293
Gln Xaa His Asp Gln Ile Val Thr Ser Arg Lys Ser Gln Glu Pro Ala
1               5                   10                  15
Phe His Ile Ala Gly Asp Ala Cys Leu Gln Arg Lys Met Asn Val Asp
            20                  25                  30
Val Ser Ser Thr Ile Tyr Asn Asn Glu Val Leu His Gln Pro Leu Ser
        35                  40                  45
Glu Ala Gln Arg Lys Ser Lys Ser Leu Lys Ile Asn Xaa Asn Tyr Ala
    50                  55                  60
Gly Asp Ala Leu Arg Glu Asn Thr Leu Val Ser Glu His Ala Gln Arg
65                  70                  75                  80
Asp Gln Arg Glu Xaa Gln Cys Gln Met Lys Glu Ala Glu His Met Tyr
                85                  90                  95
Gln Asn Glu Gln Asp Asn Val Asn Lys His Thr Glu Gln Gln Glu Ser
                100                 105                 110
Leu Asp Gln Lys Leu Phe Gln Leu Gln Ser Lys Asn Met Trp Leu Gln
            115                 120                 125
Gln Gln Leu Val His Ala His Lys Lys Ala Asp Asn Lys Ser Lys Ile
    130                 135                 140
Thr Ile Asp Ile His Phe Leu Glu Arg Lys Met Gln His His Leu Leu
145                 150                 155                 160
Lys Glu Lys Asn Glu Glu Ile Phe Asn Tyr Asn Asn His Leu Lys Asn
                165                 170                 175
Arg Ile Tyr Gln Tyr
                180


        <210> 1294
        <211> 106
        <212> PRT
        <213> Homo sapiens


        <400> 1294
Ile Ser Pro His Phe Ser Leu Leu Gly Asp Asp Val Ala Phe Ser Ser
1               5                   10                  15
Gln Glu Asn Glu Tyr Gln Leu Leu Ser Cys Phe Cys Cys Gln Leu Ser
            20                  25                  30
```

```
        Tyr Val His Glu Leu Ile Ala Val Glu Ala Thr Tyr Phe Cys Phe Val
            35                  40                  45
        Val Glu Ile Ile Ser Asp Leu Glu Thr Pro Ala Val Gln Cys Val Cys
            50                  55                  60
  5     Ser His Tyr Leu Val Arg Phe Asp Thr Cys Val Gln Leu Pro Ser Phe
        65                  70                  75                  80
        Asp Thr Xaa Phe His Val Gly Leu Phe Val His Val Leu Lys Pro Met
                        85                  90                  95
        Tyr Phe Leu Leu Glu His Leu Arg His Asn
 10                 100                 105


            <210> 1295
            <211> 185
            <212> PRT
 15         <213> Homo sapiens


            <400> 1295
        Tyr Gly Arg Phe Leu Leu Leu Ile Val Gly Tyr Phe Cys Phe Ser Tyr
            1               5                   10                  15
 20     Cys His Leu Lys Tyr Ile Phe Asn Val Glu Ile Leu Thr Ala Cys Leu
                        20                  25                  30
        Met Lys Ser Ser Phe Gln Ile Phe Leu Gly Ser Pro Val Lys Asp Gly
                    35                  40                  45
        Leu Leu Lys Ala Asn Cys Gly Met Lys Val Ser Ile Pro Thr Lys Ala
 25         50                  55                  60
        Leu Glu Leu Met Asp Met Gln Thr Phe Lys Ala Glu Pro Pro Glu Lys
        65                  70                  75                  80
        Pro Ser Ala Phe Glu Pro Ala Ile Glu Met Gln Lys Ser Val Pro Asn
                        85                  90                  95
 30     Lys Ala Leu Glu Leu Lys Asn Glu Gln Thr Leu Arg Ala Asp Glu Ile
                    100                 105                 110
        Leu Pro Ser Glu Ser Lys Gln Lys Asp Tyr Glu Glu Ser Ser Trp Asp
                    115                 120                 125
        Ser Glu Ser Leu Cys Glu Thr Val Ser Gln Lys Asp Val Cys Leu Pro
 35         130                 135                 140
        Lys Ala Ala His Gln Lys Glu Ile Asp Lys Ile Asn Gly Lys Leu Glu
        145                 150                 155                 160
        Gly Arg Tyr Ala Ala Glu Phe Arg Thr Phe Ser Ala Met Ile Arg Xaa
                    165                 170                 175
 40     Pro Val Lys Arg Trp Ser Ser Glu Gly
                    180                 185


            <210> 1296
            <211> 130
 45         <212> PRT
            <213> Homo sapiens


            <400> 1296
        Xaa Ile Ile Phe Ile Phe Met Ser Xaa Arg Asn Leu Thr Leu Xaa Ser
 50         1               5                   10                  15
        Ser Cys Ser His Leu Thr Phe Trp Phe Ser Asn Trp Asp Phe Ile Ser
                    20                  25                  30
        Phe Ala Ser Asp Ser Phe Phe Phe Ser Thr Gln Asn Phe Phe Phe Ile
                    35                  40                  45
 55     Cys Ser Ile Phe Pro Xaa Val Val His Xaa Asp Leu Phe Glu Val Pro
            50                  55                  60
        Leu Leu Phe His Lys Asn Glu Xaa Tyr Pro Lys Phe Leu Ile Gly Xaa
        65                  70                  75                  80
        Leu Asn Leu Xaa Ile Phe His Leu Phe Tyr Pro Phe Leu Phe Asp Xaa
 60                 85                  90                  95
        Asn Leu Gly Xaa Thr Xaa His Pro Ser Xaa Glu Gln Val Xaa Thr Glu
                    100                 105                 110
        Asp Leu Ser Xaa Asn Pro Lys Asn Phe Leu Gln Pro Phe Phe Cys Phe
```

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           115                120                125
Asp Ser
    130


           <210> 1297
           <211> 103
           <212> PRT
           <213> Homo sapiens


           <400> 1297
Met Gly Thr Arg Ala Xaa Gln Cys Glu Val Ser Xaa Thr His Glu Asn
1               5                10                15
Glu Asn Tyr Xaa Leu His Glu Asn Cys Met Leu Lys Lys Glu Ile Ala
        20                25                30
Met Leu Lys Leu Glu Ile Ala Xaa Leu Lys Xaa Gln Tyr Gln Glu Lys
        35                40                45
Glu Asn Lys Tyr Phe Glu Asp Ile Lys Ile Leu Lys Glu Lys Asn Ala
        50                55                60
Glu Leu Gln Met Thr Leu Lys Leu Lys Glu Glu Ser Leu Thr Lys Arg
65                70                75                80
Ala Ser Gln Tyr Ser Gly Gln Leu Lys Val Xaa Ile Ala Glu Asn Xaa
            85                90                95
Met Leu Thr Xaa Lys Leu Lys
            100


           <210> 1298
           <211> 98
           <212> PRT
           <213> Homo sapiens


           <400> 1298
Xaa Xaa Xaa Xaa Thr Ile Xaa Xaa Arg Phe Xaa Xaa Phe Xaa Phe Lys
1               5                10                15
Asn Gln Asn Lys Arg Arg Val Glu Glu Asn Phe Trp Gly Xaa Xaa Lys
        20                25                30
Gly Pro Arg Xaa Arg Leu Val Xaa Lys Lys Asp Xaa Gly Xaa Pro Gln
        35                40                45
Gly Xaa His Gln Lys Glu Met Asp Lys Ile Ser Gly Lys Xaa Glu Asp
        50                55                60
Ser Xaa Ser Leu Ser Lys Ile Leu Asp Xaa Val His Ser Cys Glu Arg
65                70                75                80
Ala Arg Glu Leu Gln Lys Asp Xaa Cys Glu Gln Xaa Gln Glu Lys Trp
            85                90                95
Asn Lys


           <210> 1299
           <211> 207
           <212> PRT
           <213> Homo sapiens


           <400> 1299
Lys Pro Ser Ala Phe Glu Pro Ala Ile Glu Met Gln Lys Ser Val Pro
1               5                10                15
Asn Lys Ala Leu Glu Leu Lys Asn Glu Gln Thr Leu Arg Ala Asp Glu
        20                25                30
Ile Leu Pro Ser Glu Ser Lys Gln Lys Asp Tyr Glu Glu Ser Ser Trp
        35                40                45
Asp Ser Glu Ser Leu Cys Glu Thr Val Ser Gln Lys Asp Val Cys Leu
        50                55                60
Pro Lys Ala Ala His Gln Lys Glu Ile Asp Lys Ile Asn Gly Lys Leu
65                70                75                80
Glu Gly Arg Tyr Ala Ala Glu Phe Gly Thr Phe Ser Ala Met Ile Arg
```

```
                         85                    90                    95
        Ser Pro Val Lys Asp Gly Leu Leu Lys Ala Asn Cys Gly Met Lys Val
                    100                   105                   110
        Ser Ile Pro Thr Lys Ala Leu Glu Leu Met Asp Met Gln Thr Phe Lys
   5                115                   120                   125
        Ala Glu Pro Pro Glu Lys Pro Ser Ala Phe Glu Pro Ala Ile Glu Met
                130                   135                   140
        Gln Lys Ser Val Pro Asn Lys Ala Leu Glu Leu Lys Asn Glu Gln Thr
        145                   150                   155                   160
  10    Leu Arg Ala Asp Glu Ile Ser His Gln Asn Pro Asn Lys Arg Thr Met
                    165                   170                   175
        Lys Lys Val Leu Gly Ile Leu Arg Val Ser Val Arg Leu Phe His Arg
                    180                   185                   190
        Lys Asp Val Cys Leu Pro Gln Xaa Ala Xaa Gln Lys Glu Ile Asp
  15                195                   200                   205


           <210> 1300
           <211> 187
           <212> PRT
  20       <213> Homo sapiens


           <400> 1300
        Thr Gly Phe Cys Trp Xaa Lys Ala His Asp Gln Ile Val Thr Ser Arg
         1               5                   10                    15
  25    Lys Ser Gln Glu Pro Ala Phe His Ile Ala Gly Asp Ala Cys Leu Gln
                    20                    25                    30
        Arg Lys Met Asn Val Asp Val Ser Ser Pro Ile Tyr Asn Asn Glu Val
                    35                    40                    45
        Leu His Gln Pro Leu Ser Glu Ala Gln Arg Lys Ser Lys Ser Leu Lys
  30          50                    55                    60
        Ile Asn Leu Asn Tyr Ala Gly Asp Ala Leu Arg Glu Asn Thr Leu Val
        65                    70                    75                    80
        Ser Glu His Ala Gln Arg Asp Gln Arg Glu Thr Gln Cys Gln Met Lys
                    85                    90                    95
  35    Glu Ala Glu His Met Tyr Gln Asn Glu Gln Asp Asn Val Asn Lys His
                    100                   105                   110
        Thr Glu Gln Gln Glu Ser Xaa Asp Gln Lys Leu Phe Gln Leu Gln Ser
                    115                   120                   125
        Lys Asn Met Trp Leu Gln Gln Gln Leu Val His Ala His Lys Lys Ala
  40        130                   135                   140
        Asp Asn Lys Ser Lys Ile Thr Ile Asp Ile His Phe Leu Glu Arg Lys
        145                   150                   155                   160
        Met Gln His His Leu Leu Lys Glu Lys Asn Glu Glu Ile Phe Asn Tyr
                    165                   170                   175
  45    Asn Asn His Leu Lys Asn Arg Ile Tyr Gln Tyr
                    180                   185


           <210> 1301
  50       <211> 164
           <212> PRT
           <213> Homo sapiens


           <400> 1301
        Pro Ala Ile Glu Met Gln Lys Ser Val Pro Asn Lys Ala Leu Glu Leu
  55     1               5                   10                    15
        Lys Asn Glu Gln Thr Leu Arg Ala Asp Gln Met Phe Pro Ser Glu Ser
                    20                    25                    30
        Lys Gln Lys Lys Val Glu Glu Asn Ser Trp Asp Ser Glu Ser Leu Arg
                    35                    40                    45
  60    Glu Thr Val Ser Gln Lys Asp Val Cys Val Pro Lys Ala Thr His Gln
                50                    55                    60
        Lys Glu Met Asp Lys Ile Ser Gly Lys Leu Glu Asp Ser Thr Ser Leu
        65                    70                    75                    80
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        Ser Lys Ile Leu Asp Thr Val His Ser Cys Glu Arg Ala Arg Glu Leu
                        85                    90              95
        Gln Lys Asp His Cys Glu Gln Arg Thr Gly Lys Met Glu Gln Met Lys
                    100                 105             110
  5     Lys Lys Phe Cys Val Leu Lys Lys Lys Leu Ser Glu Ala Lys Glu Ile
                    115                 120             125
        Lys Ser Gln Leu Glu Asn Gln Lys Val Lys Trp Glu Gln Glu Leu Cys
            130                 135             140
        Ser Val Arg Val Leu Thr Leu Met Lys Met Lys Ile Ile Ser Tyr Met
 10     145                 150             155             160
        Lys Ile Ala Cys


            <210> 1302
 15         <211> 196
            <212> PRT
            <213> Homo sapiens


            <400> 1302
 20     Asp Leu Lys Thr Val Lys Glu Lys Asp Asp Ile Leu Phe Glu Asp Leu
        1               5                   10              15
        Gln Asp Asn Xaa Asn Glu Asn Gly Glu Gly Glu Ile Glu Asp Glu Glu
                    20                  25              30
        Glu Glu Gly Tyr Asp Asp Asp Asp Asp Trp Asp Trp Asp Glu Gly
 25                 35                  40              45
        Val Gly Lys Leu Ala Lys Gly Tyr Val Trp Asn Gly Gly Ser Asn Pro
                50                  55              60
        Gln Ala Asn Arg Gln Thr Ser Asp Ser Ser Ser Ala Lys Met Ser Thr
        65                  70                  75              80
 30     Pro Ala Asp Lys Val Leu Arg Lys Phe Glu Asn Lys Ile Asn Leu Asp
                        85                  90              95
        Lys Leu Asn Val Thr Asp Ser Val Ile Asn Lys Val Thr Glu Lys Ser
                    100                 105             110
        Arg Gln Lys Glu Ala Asp Met Tyr Arg Ile Lys Asp Lys Ala Asp Arg
 35                 115                 120             125
        Ala Thr Val Glu Gln Val Leu Asp Pro Arg Thr Arg Met Ile Leu Phe
                130                 135             140
        Lys Met Leu Thr Arg Gly Ile Ile Thr Glu Ile Asn Gly Cys Ile Ser
        145                 150                 155             160
 40     Thr Gly Lys Glu Ala Asn Val Ser Met Leu Ala Gln Gln Met Glu Arg
                        165                 170             175
        Ala Glu Gln Ser Lys Phe Ile Lys Leu Leu Phe Trp Cys Ser Lys Ile
                    180                 185             190
        Gly Ile Asn Met
 45                 195


            <210> 1303
            <211> 205
            <212> PRT
 50         <213> Homo sapiens


            <400> 1303
        Phe Phe Ser Pro Asn Glu Asn Phe Met Ala Lys Glu His Asp Phe Leu
        1               5                   10              15
 55     Ser Ile Ile Gly Phe Trp Asn Asn Gly Ile Phe Cys Leu Trp Leu Ser
                    20                  25              30
        Leu Ile Lys Ser Phe Ile Phe Phe Phe Gly Pro Ser Phe Pro His Phe
                35                  40              45
        Leu Arg Val Ser Phe Thr Ile Ala Met Thr Lys Ser Glu Phe Ser Thr
 60             50                  55              60
        Tyr Ile Phe Ile Pro Ile Phe Glu His Gln Asn Arg Ser Phe Ile Asn
        65                  70                  75              80
        Phe Asp Cys Ser Ala Leu Ser Ile Cys Cys Ala Ser Met Asp Thr Leu
```

```
                          85                  90                  95
       Ala Ser Phe Pro Val Leu Met Gln Pro Phe Ile Ser Val Met Ile Pro
                     100                 105                 110
       Leu Val Asn Ile Leu Asn Lys Ile Ile Leu Val Leu Gly Ser Asn Thr
 5                   115                 120                 125
       Cys Ser Thr Val Ala Leu Ser Ala Leu Ser Leu Met Arg Tyr Ile Ser
                 130                 135                 140
       Ala Ser Phe Cys Leu Asp Phe Ser Val Thr Leu Phe Met Thr Glu Ser
       145                 150                 155                 160
 10    Val Thr Phe Ser Leu Ser Lys Leu Ile Leu Phe Ser Asn Phe Arg Lys
                     165                 170                 175
       Thr Leu Ser Ala Gly Val Asp Ile Leu Ala Glu Leu Leu Ser Glu Val
                     180                 185                 190
       Cys Arg Phe Ala Cys Gly Leu Leu Pro Pro Phe Gln Thr
 15              195                 200                 205


               <210> 1304
               <211> 164
               <212> PRT
 20            <213> Homo sapiens


               <400> 1304
       Pro Ala Ile Glu Met Gln Lys Ser Val Pro Asn Lys Ala Leu Glu Leu
       1                   5                   10                  15
 25    Lys Asn Glu Gln Thr Leu Arg Ala Asp Gln Met Phe Pro Ser Glu Ser
                     20                  25                  30
       Lys Gln Lys Lys Val Glu Glu Asn Ser Trp Asp Ser Glu Ser Leu Arg
                 35                  40                  45
       Glu Thr Val Ser Gln Lys Asp Val Cys Val Pro Lys Ala Thr His Gln
 30        50                  55                  60
       Lys Glu Met Asp Lys Ile Ser Gly Lys Leu Glu Asp Ser Thr Ser Leu
       65                  70                  75                  80
       Ser Lys Ile Leu Asp Thr Val His Ser Cys Glu Arg Ala Arg Glu Leu
                     85                  90                  95
 35    Gln Lys Asp His Cys Glu Gln Arg Thr Gly Lys Met Glu Gln Met Lys
                     100                 105                 110
       Lys Lys Phe Cys Val Leu Lys Lys Lys Leu Ser Glu Ala Lys Glu Ile
                 115                 120                 125
       Lys Ser Gln Leu Glu Asn Gln Lys Val Lys Trp Glu Gln Glu Leu Cys
 40        130                 135                 140
       Ser Val Arg Val Leu Thr Leu Met Lys Met Lys Ile Ile Ser Tyr Met
       145                 150                 155                 160
       Lys Ile Ala Cys

 45
               <210> 1305
               <211> 133
               <212> PRT
               <213> Homo sapiens
 50
               <400> 1305
       Glu Thr Val Ser Gln Lys Asp Val Cys Val Pro Lys Ala Thr His Gln
       1                   5                   10                  15
       Lys Glu Met Asp Lys Ile Ser Gly Lys Leu Glu Asp Ser Thr Ser Leu
 55                  20                  25                  30
       Ser Lys Ile Leu Asp Thr Val His Ser Cys Glu Arg Ala Arg Glu Leu
                 35                  40                  45
       Gln Lys Asp His Cys Glu Gln Arg Thr Gly Lys Met Glu Gln Met Lys
                 50                  55                  60
 60    Lys Lys Phe Cys Val Leu Lys Lys Lys Leu Ser Glu Ala Lys Glu Ile
       65                  70                  75                  80
       Lys Ser Gln Leu Glu Asn Gln Lys Val Lys Trp Glu Gln Glu Leu Cys
                     85                  90                  95
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      Ser Val Arg Leu Thr Leu Asn Pro Glu Glu Glu Lys Arg Arg Asn Ala
                  100                 105                 110
      Asp Ile Leu Asn Glu Lys Ile Arg Glu Glu Leu Gly Arg Ile Glu Glu
                  115                 120                 125
  5   His Ile Gly Lys Ser
                  130


          <210> 1306
          <211> 83
 10       <212> PRT
          <213> Homo sapiens


          <400> 1306
      Gln Arg Phe Ile Ser Leu Phe Xaa Asp Gly Xaa Ser Xaa Xaa Xaa Ile
 15   1               5               10                  15
      Ser Ser Leu Ser Xaa Gln Phe Pro Phe Ser Thr Cys Asn Phe Xaa Glu
                  20              25                  30
      Glu Ile Ile Phe Ile Phe Met Ser Val Arg Thr Leu Ile Gln Xaa Thr
                  35              40                  45
 20   Phe Tyr Thr Leu Gln Xaa Tyr Ile Leu Tyr Ser Glu Ser Leu Phe Lys
                  50              55                  60
      Cys Cys Phe Thr Ser Asn Ser Phe Leu Cys Ala Leu Arg Phe Phe Leu
      65              70                  75                  80
      Ile Leu Pro
 25


          <210> 1307
          <211> 231
          <212> PRT
 30       <213> Homo sapiens


          <400> 1307
      Leu Lys Arg Gly Ile Ser Asn Lys Val Gly Gln Leu Lys Val Xaa Xaa
 35   1               5               10                  15
      Ser Leu Arg Thr Gln Cys Ser Leu Phe Lys Leu Lys Glu Xaa Gln Ala
                  20              25                  30
      Xaa Glu Ile Xaa Glu Ala Glu Ile Glu Ser His His Pro Arg Leu Ala
                  35              40                  45
      Ser Ala Val Gln Asp His Asp Gln Ile Val Thr Ser Arg Lys Ser Gln
 40       50              55                  60
      Glu Pro Ala Phe His Ile Ala Gly Asp Ala Cys Leu Gln Arg Lys Met
      65              70                  75                  80
      Asn Val Asp Val Ser Ser Thr Ile Tyr Asn Asn Glu Val Leu His Gln
                  85                  90                  95
 45   Pro Leu Ser Glu Ala Gln Arg Lys Ser Lys Ser Leu Lys Ile Asn Leu
                  100                 105                 110
      Asn Tyr Ala Gly Asp Ala Leu Arg Glu Asn Thr Leu Val Ser Glu His
                  115                 120                 125
      Ala Gln Arg Asp Gln Arg Glu Xaa Gln Cys Gln Met Lys Glu Ala Glu
 50       130                 135                 140
      His Met Tyr Gln Asn Glu Gln Asp Asn Val Asn Lys His Thr Glu Gln
      145                 150                 155                 160
      Gln Glu Ser Xaa Asp Gln Lys Leu Phe Gln Leu Gln Ser Lys Asn Met
                  165                 170                 175
 55   Trp Leu Gln Gln Gln Leu Val His Ala His Lys Lys Ala Asp Asn Lys
                  180                 185                 190
      Ser Lys Ile Thr Ile Asp Ile His Phe Leu Glu Arg Lys Met Gln His
                  195                 200                 205
      His Leu Leu Lys Glu Lys Asn Glu Glu Ile Phe Asn Tyr Asn Asn His
 60       210                 215                 220
      Leu Lys Xaa Arg Ile Tyr Gln
      225                 230
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```
<210> 1308
<211> 183
<212> PRT
<213> Homo sapiens

<400> 1308
Asp Leu Lys Thr Val Lys Glu Lys Asp Asp Ile Leu Phe Glu Asp Leu
1               5                   10                  15
Gln Asp Asn Xaa Asn Glu Asn Gly Glu Gly Glu Ile Glu Asp Glu Glu
            20              25                  30
Glu Glu Gly Tyr Asp Asp Asp Asp Asp Asp Trp Asp Trp Asp Glu Gly
        35                  40                  45
Val Gly Lys Leu Ala Lys Gly Tyr Val Trp Asn Gly Gly Ser Asn Pro
    50                  55                  60
Gln Ala Asn Arg Gln Thr Ser Asp Ser Ser Ser Ala Lys Met Ser Thr
65                  70                  75                  80
Pro Ala Asp Lys Val Leu Arg Lys Phe Glu Asn Lys Ile Asn Leu Asp
            85                  90                  95
Lys Leu Asn Val Thr Asp Ser Val Ile Asn Lys Val Thr Glu Lys Ser
            100                 105                 110
Arg Gln Lys Glu Ala Asp Met Tyr Arg Ile Lys Asp Lys Ala Asp Arg
            115                 120                 125
Ala Thr Val Glu Gln Val Leu Asp Pro Arg Thr Arg Met Ile Leu Phe
    130                 135                 140
Lys Met Leu Thr Arg Gly Ile Ile Thr Glu Ile Asn Gly Cys Ile Ser
145                 150                 155                 160
Thr Gly Lys Glu Ala Asn Val Ser Met Leu Xaa Thr Ala Asn Gly Glu
            165                 170                 175
Ser Arg Ala Ile Lys Ile Tyr
            180

<210> 1309
<211> 219
<212> PRT
<213> Homo sapiens

<400> 1309
Glu Glu Cys Ile Arg Met Pro Asp Phe Val His Ala Asp Leu Ser Glu
1               5                   10                  15
Phe Asn Met Leu Tyr His Gly Gly Gly Val Tyr Ile Ile Asp Val Ser
            20              25                  30
Gln Ser Val Glu His Asp His Pro His Ala Leu Glu Phe Leu Arg Lys
            35              40                  45
Asp Cys Ala Asn Val Asn Asp Phe Phe Met Arg His Ser Val Ala Val
    50                  55                  60
Met Thr Val Arg Glu Leu Phe Glu Phe Val Thr Asp Pro Ser Ile Thr
65                  70                  75                  80
His Glu Asn Met Asp Ala Tyr Leu Ser Lys Ala Met Glu Ile Ala Ser
            85                  90                  95
Gln Arg Thr Lys Glu Glu Arg Ser Ser Gln Asp His Val Asp Glu Glu
            100                 105                 110
Val Phe Lys Arg Ala Tyr Ile Pro Arg Thr Leu Asn Glu Val Lys Asn
    115                 120                 125
Tyr Glu Arg Asp Met Asp Ile Ile Met Lys Leu Lys Glu Glu Asp Met
    130                 135                 140
Ala Met Asn Ala Gln Gln Asp Asn Ile Leu Tyr Gln Thr Val Thr Gly
145                 150                 155                 160
Leu Lys Lys Asp Leu Ser Gly Val Gln Lys Val Pro Ala Leu Leu Glu
            165                 170                 175
Asn Gln Val Glu Glu Arg Thr Cys Ser Asp Ser Glu Asp Ile Gly Ser
            180                 185                 190
Ser Glu Cys Ser Asp Thr Asp Ser Glu Glu Gln Gly Asp His Ala Arg
            195                 200                 205
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```
Pro Lys Lys His Thr Thr Asp Pro Asp Ile Asp
    210                 215


    <210> 1310
    <211> 191
    <212> PRT
    <213> Homo sapiens


    <400> 1310
Glu Pro Asp Gln Lys Pro Glu Pro Val Asp Lys Val Ala Ala Met Arg
1               5               10              15
Glu Phe Arg Val Leu His Thr Ala Leu His Ser Ser Ser Ser Tyr Arg
            20              25              30
Glu Ala Val Phe Lys Met Leu Ser Asn Lys Glu Ser Leu Asp Gln Ile
        35              40              45
Ile Val Ala Thr Pro Gly Leu Ser Ser Asp Pro Ile Ala Leu Gly Val
    50              55              60
Leu Gln Asp Lys Asp Leu Phe Ser Val Phe Ala Asp Pro Asn Met Leu
65              70              75              80
Asp Thr Leu Val Pro Ala His Pro Ala Leu Val Asn Ala Ile Val Leu
                85              90              95
Val Leu His Ser Val Ala Gly Ser Ala Pro Met Pro Gly Thr Asp Ser
            100             105             110
Ser Ser Arg Ser Met Pro Ser Ser Ser Tyr Arg Asp Met Pro Gly Gly
        115             120             125
Phe Leu Phe Glu Gly Leu Ser Xaa Asp Glu Asp Asp Phe His Pro Asn
    130             135             140
Thr Arg Ser Thr Pro Ser Ser Ser Thr Pro Ser Ser Arg Gln Pro Pro
145             150             155             160
Gly Val Gln Val Glu Leu Leu Gly Pro Gly Pro Ser Pro Lys Val Ser
            165             170             175
Trp Pro Pro Pro Trp Pro Trp Pro Ala Xaa Arg Arg Ala Ser Phe
            180             185             190


    <210> 1311
    <211> 164
    <212> PRT
    <213> Homo sapiens


    <400> 1311
Tyr Arg Asp Met Pro Gly Ala Ser Cys Leu Lys Gly Ser Gln Met Met
1               5               10              15
Arg Met Thr Phe Thr Gln Thr Pro Gly Pro His Pro Xaa Ser Ser Thr
            20              25              30
Pro Ser Ser Arg Pro Ala Ser Leu Gly Tyr Ser Gly Ala Xaa Gly Pro
        35              40              45
Arg Pro Ile Thr Gln Ser Glu Leu Ala Thr Ala Leu Ala Leu Ala Ser
    50              55              60
Thr Pro Glu Ser Ser Ser His Thr Pro Thr Pro Gly Thr Gln Gly His
65              70              75              80
Ser Ser Gly Thr Ser Pro Met Ser Xaa Gly Val Gln Ser Gly Thr Pro
            85              90              95
Ile Thr Asn Asp Leu Phe Ser Gln Ala Leu Gln His Ala Leu Gln Ala
            100             105             110
Xaa Gly Gln Pro Ser Leu Gln Ser Gln Trp Gln Pro Gln Leu Gln Gln
        115             120             125
Leu Arg Asp Met Gly Ile Gln Asp Asp Glu Leu Ser Leu Arg Ala Leu
    130             135             140
Gln Ala Thr Gly Gly Asp Ile Gln Ala Ala Leu Glu Leu Ile Phe Ala
145             150             155             160
Gly Gly Ala Pro
```

519

```
<210> 1312
<211> 120
<212> PRT
<213> Homo sapiens

<400> 1312
Leu Ser Pro Lys His Gln Val His Thr Xaa Leu Ala Val Leu Pro Ala
1               5                   10                  15
Pro Ala Gln Pro Pro Trp Gly Thr Val Glu Leu Xaa Gly Pro Gly Pro
            20                  25                  30
Ser Pro Arg Val Ser Trp Pro Pro Pro Trp Pro Trp Pro Ala Leu Arg
        35                  40                  45
Arg Ala Ala Leu Thr His Arg Leu Leu Ala Pro Arg Val Ile Pro Gln
        50                  55                  60
Gly Pro His Gln Cys Pro Xaa Val Ser Ser Gln Gly Arg Pro Ser Pro
65                  70                  75                  80
Met Ile Ser Ser Ala Lys Pro Tyr Ser Met Pro Phe Arg Pro Xaa Gly
                85                  90                  95
Ser Pro Ala Phe Arg Ala Ser Gly Ser Pro Ser Cys Ser Ser Tyr Val
            100                 105                 110
Thr Trp Ala Ser Arg Thr Met Ser
        115                 120


<210> 1313
<211> 110
<212> PRT
<213> Homo sapiens

<400> 1313
Gly Met Thr Leu Gly Ala Arg Ser Arg Cys Val Arg Ala Ala Leu Arg
1               5                   10                  15
Ser Ala Gly Gln Gly Gln Gly Gly Gln Leu Thr Leu Gly Asp Gly
            20                  25                  30
Pro Gly Pro Xaa Ser Ser Thr Val Pro Gln Gly Gly Trp Ala Gly Ala
        35                  40                  45
Gly Ser Thr Ala Xaa Arg Val Trp Thr Trp Cys Leu Gly Glu Ser His
        50                  55                  60
Pro His His Leu Arg Thr Leu Gln Thr Gly Ser Pro Trp His Ile Pro
65                  70                  75                  80
Val Leu Ala Gly Xaa His Ala Xaa Gly Xaa Gly Ile Asn Pro Arg His
                85                  90                  95
Trp Gly Pro Ala Cys Phe Arg Val Xaa Asn Gln Glu Gln Trp
            100                 105                 110


<210> 1314
<211> 225
<212> PRT
<213> Homo sapiens

<400> 1314
Phe Gln Glu Arg Ala Arg Ile Glu Lys Ala Tyr Ala Gln Gln Leu Ala
1               5                   10                  15
Asp Trp Ala Arg Lys Trp Arg Gly Thr Val Glu Lys Gly Pro Gln Tyr
            20                  25                  30
Gly Thr Leu Glu Lys Ala Trp His Ala Phe Phe Thr Ala Ala Glu Arg
        35                  40                  45
Leu Ser Ala Leu His Leu Glu Val Arg Glu Lys Pro Gln Gly Gln Asp
        50                  55                  60
Ser Glu Arg Val Arg Ala Trp Gln Arg Gly Ala Phe His Arg Pro Val
65                  70                  75                  80
Leu Gly Gly Phe Arg Glu Ser Arg Ala Ala Glu Asp Gly Phe Arg Lys
                85                  90                  95
Ala Gln Lys Pro Trp Leu Lys Arg Leu Lys Glu Val Glu Ala Ser Lys
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```
                        100                    105                    110
        Lys Ser Tyr His Ala Ala Arg Lys Asp Glu Lys Thr Ala Gln Thr Arg
                115                    120                    125
        Glu Ser His Ala Lys Ala Asp Ser Ala Val Xaa Gln Glu Gln Leu Arg
  5             130                    135                    140
        Lys Leu Gln Glu Arg Val Glu Arg Cys Ala Lys Glu Ala Glu Lys Thr
        145                    150                    155                    160
        Lys Ala Gln Tyr Glu Gln Thr Leu Ala Glu Leu His Arg Tyr Thr Pro
                        165                    170                    175
 10     Arg Tyr Met Glu Asp Met Glu Gln Ala Phe Glu Thr Leu Gln Ala Arg
                        180                    185                    190
        Arg Ala Pro Xaa Ala Ser Phe Leu Xaa Gly Tyr Ala Xaa His Leu Thr
                195                    200                    205
        Pro Thr Pro Gly Pro Phe Ser Ala Val Arg Ser Xaa Met Lys Leu His
 15             210                    215                    220
        Pro
        225


                <210> 1315
 20             <211> 214
                <212> PRT
                <213> Homo sapiens


                <400> 1315
 25     Lys Arg Ser Arg Cys Trp Cys Lys Val Xaa Ser Ile Ser Xaa Lys Lys
        1               5                      10                     15
        Arg Ser Xaa Trp Arg Ser Ala Gly Leu Gln Gly Leu Lys Gly Leu Phe
                        20                     25                     30
        His Val Leu His Val Ala Trp Ser Val Ala Met Gln Leu Cys Gln Arg
 30             35                     40                     45
        Leu Leu Ile Leu Ser Phe Cys Leu Leu Gly Leu Leu Gly Thr Ala Phe
                50                     55                     60
        His Pro Phe Leu Gln Phe Ala Gln Leu Leu Leu Xaa Asp Gly Ala Val
        65                     70                     75                     80
 35     Cys Leu Cys Val Ala Leu Pro Arg Leu Gly Gly Leu Leu Ile Leu Pro
                        85                     90                     95
        Gly Cys Val Val Ala Phe Leu Gly Ser Leu Asn Leu Leu Gln Pro Leu
                        100                    105                    110
        Gln Pro Gly Leu Leu Gly Leu Ala Glu Ala Val Leu Gly Arg Pro Ala
 40             115                    120                    125
        Leu Ala Glu Ala Ala Gln His Arg Pro Val Glu Ser Pro Pro Leu Pro
                130                    135                    140
        Gly Ala His Pro Leu Thr Val Leu Pro Leu Arg Leu Leu Pro His Leu
        145                    150                    155                    160
 45     Gln Val Gln Arg Ala Gln Pro Leu Ser Arg Arg Glu Lys Gly Met Pro
                        165                    170                    175
        Gly Leu Leu Gln Cys Ala Ile Leu Gly Ala Leu Leu His Gly Pro Pro
                        180                    185                    190
        Pro Leu Ser Gly Pro Val Ser Gln Leu Leu Gly Ile Ser Leu Leu Asp
 50             195                    200                    205
        Ala Gly Ala Leu Leu Glu
                210


                <210> 1316
 55             <211> 163
                <212> PRT
                <213> Homo sapiens


                <400> 1316
 60     Gly Xaa Gln His Ile Leu Xaa Glu Lys Lys Pro Xaa Ala Leu Gly Gly
        1               5                      10                     15
        Pro Ala Arg Ser Gln Arg Leu Val Pro Cys Pro Pro Cys Ser Val Glu
                        20                     25                     30
```

```
       Cys Ser Asp Ala Ala Leu Pro Ala Ser Ala His Thr Glu Leu Leu Ser
               35                  40                  45
       Ser Arg Pro Pro Trp His Ser Val Pro Pro Val Pro Ala Val Cys Ala
               50                  55                  60
  5    Ala Ala Pro Xaa Arg Arg Arg Cys Leu Pro Leu Arg Gly Ser Pro Ser
       65                  70                  75                  80
       Ser Gly Arg Ser Ser His Pro Ser Gly Leu Arg Gly Ser Phe Ser Trp
                       85                  90                  95
       Lys Pro Gln Pro Pro Ser Ala Ser Ser Ala Arg Ala Ser Gly Pro Cys
 10                    100                 105                 110
       Gly Ser Arg Pro Arg Pro Pro Gly Ser Arg Gly Ser Arg Pro Ala Gln
                   115                 120                 125
       Ala Gly Gly Lys Pro Pro Ala Ala Arg Arg Ala Pro Ala His Cys Pro
                   130                 135                 140
 15    Ala Leu Ala Ala Ser Pro Ala Pro Pro Gly Ala Ala Arg Ser Ala Ala
       145                 150                 155                 160
       Gln Pro Pro


 20            <210> 1317
               <211> 162
               <212> PRT
               <213> Homo sapiens


 25            <400> 1317
       Thr Arg Pro Phe Pro Thr Ser Pro Phe Pro Arg Gln Arg Pro Leu Pro
        1               5                  10                  15
       Ser Leu Gly Pro Arg Thr Ser Ser Leu Lys Gly Gln Arg Ser Ser Gln
                       20                  25                  30
 30    Arg Ala Thr Val Gln Gly Pro Glu Gly Pro Ala Leu Gln Glu Lys Leu
                   35                  40                  45
       Gly Ser Glu Pro Gly Trp Val Asn Val Ala Glu Gly Leu Ser Gly His
                   50                  55                  60
       Ser Gly Ala His Thr Leu His Val Val Gly Arg Val Gln Ala Asn Ala
 35    65                  70                  75                  80
       Ala Thr Leu Gln Leu Ala Leu Ala Pro Ala Leu Leu Val Leu Leu Thr
                       85                  90                  95
       His Leu Gln Gln Leu Leu Pro Cys Ser Glu Ala Gln Leu Ile Ser Phe
                   100                 105                 110
 40    Leu Ala Ser Val Val Ile Glu Cys Pro Xaa Arg Thr Pro Val Gly Ala
                   115                 120                 125
       Phe Xaa Gly Leu Ser Ser Ser Asp His Ser Ser Ser Cys Pro Val Pro
                   130                 135                 140
       Gly Asp Pro Gly Thr Gly Val Gly Gly Xaa Gly Ile Xaa Val Gly Gln
 45    145                 150                 155                 160
       Xaa Leu


 50            <210> 1318
               <211> 126
               <212> PRT
               <213> Homo sapiens


 55            <400> 1318
       Val Phe Leu Phe Leu Cys Val Gly Val Cys Gln Val Leu Ile His Ala
        1               5                  10                  15
       Arg Thr Ser His Lys Arg Val Leu Leu Gly Gln Asn Tyr Thr His Pro
                       20                  25                  30
       Lys Pro Thr Pro Gly Thr Pro Lys Gln Arg Ser Gly Thr Glu Ser Thr
 60                    35                  40                  45
       Ala Pro Gly Glu Ala Gln Ala Pro Leu Asn Ala Ser Val Thr Ser Asp
                   50                  55                  60
       Leu Pro Ser Cys Pro Gln Pro Arg Leu Val Pro Ser Leu Pro Val Pro
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         65                    70                    75                    80
         Ser Leu Asp Lys Gly Pro Ser Pro Pro Trp Val Pro Gly Leu Pro Pro
                         85                    90                    95
         Ser Arg Asp Arg Gly Ala Ala Arg Glu Arg Arg Phe Arg Ala Leu Arg
5                       100                   105                   110
         Val Arg Leu Ser Arg Arg Ser Trp Ala Leu Asn Gln Gly Gly
                 115                   120                   125


             <210> 1319
10           <211> 215
             <212> PRT
             <213> Homo sapiens


             <400> 1319
15       Ala Pro Pro Asp Phe Leu Arg Ala Thr Gly Asp Arg Ala Glu Pro Ser
          1               5                  10                    15
         Val Tyr Trp Ala Ala Val Thr Leu Arg Phe Gln Met Lys Met Phe Glu
                         20                    25                    30
         Ser Ala Asp Ser Thr Ala Thr Arg Ser Gly Gln Asp Leu Trp Ala Glu
20               35                    40                    45
         Ile Cys Ser Cys Leu Pro Asn Pro Glu Gln Glu Asp Gly Ala Asn Asn
                 50                    55                    60
         Ala Phe Ser Asp Ser Phe Val Asp Ser Cys Pro Glu Gly Glu Gly Gln
         65                    70                    75                    80
25       Arg Glu Val Ala Asp Phe Ala Val Gln Pro Ala Val Lys Pro Trp Ala
                         85                    90                    95
         Pro Leu Gln Asp Ser Glu Val Tyr Leu Ala Ser Leu Glu Lys Lys Leu
                        100                   105                   110
         Arg Arg Ile Lys Gly Leu Asn Gln Glu Val Thr Ser Lys Asp Met Leu
30               115                   120                   125
         Arg Thr Leu Ala Gln Ala Lys Lys Glu Cys Trp Asp Arg Phe Leu Gln
                 130                   135                   140
         Glu Lys Leu Ala Ser Glu Phe Phe Val Asp Gly Leu Asp Ser Asp Glu
         145                   150                   155                   160
35       Ser Thr Leu Glu His Phe Lys Arg Trp Leu Gln Pro Asp Lys Val Ala
                         165                   170                   175
         Val Ser Thr Glu Glu Val Gln Tyr Leu Ile Pro Pro Glu Ser Gln Val
                        180                   185                   190
         Glu Lys Pro Val Ala Arg Gly Arg Thr Thr Xaa Arg Gly Thr Ser Gln
40               195                   200                   205
         Gln Xaa Gln Lys Gln Leu Ile
         210                   215


             <210> 1320
45           <211> 185
             <212> PRT
             <213> Homo sapiens


             <400> 1320
50       Asp Thr Glu Glu Ser Ser Ile Leu Ile Gln Cys Ala Leu Gly Gln Ser
          1               5                  10                    15
         Leu His Pro Arg Gln Ser His Met Pro Ala Pro Gly Lys Ser Leu Gly
                         20                    25                    30
         Ala Cys Ser Cys Phe Leu Cys Gly Val Glu Ile Trp Val Phe Ser Phe
55               35                    40                    45
         Ser Gly Phe Leu Pro Ala Ala Val Thr Glu Leu His Ala Ala Arg Ser
                 50                    55                    60
         Gly Pro Glu Thr Ala Ala Arg Arg Val Cys Val Cys Val Cys Val Cys
         65                    70                    75                    80
60       Val Cys Val Cys Val Cys Val Ile Tyr Cys Ser Ala Ala Ala Gly Leu
                         85                    90                    95
         Ser Pro Ala Ala Gly Ser Ser Ser Ala Thr Gly Phe Ser Thr Cys Asp
                        100                   105                   110
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523

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      Ser Gly Gly Ile Arg Tyr Trp Thr Ser Ser Val Leu Thr Xaa Thr Leu
              115                     120                 125
      Ser Gly Trp Ser His Leu Leu Lys Cys Ser Lys Xaa Leu Ser Ser Glu
              130                 135                 140
  5   Ser Ser Pro Ser Thr Lys Asn Ser Glu Ala Asn Phe Ser Trp Arg Asn
      145                 150                 155                 160
      Arg Ser Gln His Phe Xaa Leu Ala Trp Ala Lys Val Arg Ser Met Ser
                      165                 170                 175
      Xaa Glu Val Thr Ser Asp Xaa Asn Leu
 10           180                 185


              <210> 1321
              <211> 127
              <212> PRT
 15           <213> Homo sapiens


              <400> 1321
      Asn Phe Xaa Val Xaa Pro Ala Val Xaa Pro Trp Val Pro Phe Gln Xaa
      1           5                   10                  15
 20   Ser Lys Val Ile Xaa Leu Xaa Arg Glu Glu Xaa Lys Lys Asn Gln Arg
                  20              25              30
      Phe Xaa Ser Glu Val Thr Xaa Lys Asp Met Leu Arg Thr Leu Ala Gln
              35              40              45
      Ala Xaa Lys Lys Cys Trp Asp Arg Phe Leu Gln Glu Lys Leu Ala Ser
 25           50              55              60
      Glu Phe Phe Val Asp Gly Leu Asp Ser Asp Glu Ser Xaa Leu Glu His
      65                  70              75                  80
      Phe Lys Arg Trp Leu Gln Pro Asp Lys Val Xaa Val Ser Thr Glu Glu
                      85              90              95
 30   Val Gln Tyr Leu Ile Pro Pro Glu Ser Gln Val Glu Lys Pro Val Ala
                  100             105             110
      Glu Asp Glu Pro Ala Ala Gly Asp Lys Pro Ala Ala Ala Glu Gln
              115             120             125


 35           <210> 1322
              <211> 204
              <212> PRT
              <213> Homo sapiens


 40           <400> 1322
      Leu Phe Tyr Lys Gly Asn Glu Lys Lys Tyr Thr Met Ser Asp Glu Val
      1           5                   10                  15
      Phe Ser Thr Thr Leu Ala Tyr Thr Lys Ser Pro Lys Val Thr Lys Arg
                  20              25              30
 45   Thr Thr Phe Gln Asp Glu Leu Ile Arg Ala Ile Thr Ala Arg Ser Ala
              35              40              45
      Arg Gln Arg Ser Ser Glu Tyr Ser Asp Asp Phe Asp Ser Asp Glu Ile
              50              55              60
      Val Ser Leu Gly Asp Phe Ser Asp Thr Ser Ala Asp Glu Asn Ser Val
 50   65                  70              75                  80
      Asn Lys Lys Met Asn Asp Phe His Ile Ser Asp Asp Glu Glu Lys Asn
                      85              90              95
      Pro Ser Lys Leu Leu Phe Leu Lys Thr Asn Lys Ser Asn Gly Asn Ile
                  100             105             110
 55   Thr Lys Asp Glu Pro Val Cys Ala Ile Lys Asn Glu Glu Glu Met Ala
              115             120             125
      Pro Asp Gly Cys Glu Asp Ile Val Val Lys Ser Phe Ser Glu Ser Gln
              130             135             140
      Asn Lys Asp Glu Glu Phe Glu Lys Asp Lys Ile Lys Met Lys Pro Lys
 60   145             150             155             160
      Pro Arg Ile Leu Ser Ile Lys Ser Thr Ser Ser Glu Asn Asn Ser Leu
                      165             170             175
      Asp Thr Asp Asp His Phe Lys Pro Ser Pro Arg Pro Arg Glu Tyr Val
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524

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                        180                    185                    190
        Glu Lys Glu Lys Ser His Gly Gly Arg Arg Met Asp
                    195                    200

5               <210> 1323
                <211> 142
                <212> PRT
                <213> Homo sapiens

10              <400> 1323
        Leu Lys Lys Ala Ser Phe Phe Ser Phe His Phe Ser Thr Ala Val Lys
        1               5                   10                  15
        Leu Ser Phe Phe Phe Ser Ala Thr Val Ser Ser Ser Phe Cys Phe Phe
                    20                  25                  30
15      Ala Leu Ser Tyr Ser Leu Ser Phe Leu Phe Phe Ser Leu Arg Tyr Ser
                    35                  40                  45
        Ile Phe Phe Ser Phe His Phe Ser Lys Ala Cys Ser Ala Ser Pro Phe
                50                  55                  60
        Leu Ala Ala Phe Ser Ser Ser Val Phe Leu Leu Phe Phe Ser Ser Ser
20      65                  70                  75                  80
        Leu Phe Leu Ala Ala Ile Phe Phe Ala Ser Phe Ser Phe Ile Ala Phe
                        85                  90                  95
        Gln Ala Ser Asn Asp Ala Asn Ala Ser Ser Leu Leu Ala Ala Phe Phe
                    100                 105                 110
25      Cys Ser Phe Trp Ile Leu Lys Phe Ser Leu Ser Ile Leu Phe Ile Leu
                    115                 120                 125
        Xaa Ile Ser Cys Lys Tyr Thr Phe Phe Phe Ser Asn His Ser
                    130             135                 140

30              <210> 1324
                <211> 193
                <212> PRT
                <213> Homo sapiens

35              <400> 1324
        Val Phe Glu Glu Ile Leu Val Leu Lys Gly Asp Ser Thr Asp Asn Tyr
        1               5                   10                  15
        Leu Phe Ser Leu Phe Arg Asp Phe Lys Ser Leu Gly Gln Lys Pro Xaa
                    20                  25                  30
40      Gln Lys Gln Ser Ile Glu Pro Asp Arg Ala Asp Asn Ile Arg Ala Ala
                    35                  40                  45
        Val Tyr Gln Glu Trp Leu Glu Lys Lys Asn Val Tyr Leu His Glu Met
                50                  55                  60
        Xaa Arg Ile Lys Arg Ile Glu Ser Glu Asn Leu Arg Ile Gln Asn Glu
45      65                  70                  75                  80
        Gln Lys Lys Ala Ala Lys Arg Glu Glu Ala Leu Ala Ser Phe Glu Ala
                        85                  90                  95
        Trp Lys Ala Met Lys Glu Lys Glu Ala Lys Lys Ile Ala Ala Lys Lys
                    100                 105                 110
50      Arg Leu Glu Glu Lys Asn Lys Arg Lys Thr Glu Glu Glu Asn Ala Ala
                    115                 120                 125
        Arg Lys Gly Glu Ala Leu Gln Ala Phe Glu Lys Trp Lys Glu Lys Lys
                    130                 135                 140
        Met Glu Tyr Leu Lys Glu Lys Asn Arg Lys Glu Arg Glu Tyr Glu Arg
55      145                 150                 155                 160
        Ala Lys Lys Gln Lys Glu Glu Glu Thr Val Ala Glu Lys Lys Lys Asp
                        165                 170                 175
        Asn Leu Thr Ala Val Glu Lys Trp Asn Glu Lys Lys Glu Ala Phe Phe
                    180                 185                 190
60      Lys


                <210> 1325
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```
          <211> 214
          <212> PRT
          <213> Homo sapiens

5          <400> 1325
     Lys Met Asn Leu Pro Thr Pro Phe Xaa Pro Ile Thr Ala Arg Pro Pro
     1               5               10              15
     Met Tyr Glu Asp Tyr Met Pro Leu His Ala Pro Leu Pro Pro Thr Ser
               20              25              30
10   Pro Gln Pro Pro Glu Glu Pro Pro Leu Pro Asp Glu Asp Glu Glu Leu
               35              40              45
     Ser Ser Glu Glu Ser Glu Tyr Glu Ser Thr Asp Asp Glu Asp Arg Gln
               50              55              60
     Arg Met Asn Lys Leu Met Glu Leu Ala Asn Leu Gln Pro Lys Arg Pro
15   65              70              75              80
     Lys Thr Ile Lys Gln Arg His Val Arg Lys Lys Arg Lys Ile Lys Asp
                     85              90              95
     Met Leu Asn Thr Pro Leu Cys Pro Ser His Ser Leu His Pro Val Leu
                     100             105             110
20   Leu Pro Ser Asp Val Phe Asp Gln Pro Gln Pro Val Gly Asn Lys Arg
                     115             120             125
     Ile Glu Phe His Ile Ser Thr Asp Met Pro Ala Ala Phe Lys Lys Asp
               130             135             140
     Leu Glu Lys Glu Gln Asn Cys Glu Glu Lys Asn His Asp Leu Pro Ala
25   145             150             155             160
     Thr Glu Val Asp Ala Ser Asn Ile Gly Phe Gly Lys Ile Phe Pro Lys
                     165             170             175
     Pro Asn Leu Asp Ile Thr Glu Glu Ile Lys Glu Asp Ser Asp Glu Met
                     180             185             190
30   Pro Ser Glu Cys Ile Ser Arg Xaa Glu Leu Gly Lys Gly Arg Ile Ser
               195             200             205
     Arg Lys Arg Asn Gly Asn
          210

35          <210> 1326
          <211> 140
          <212> PRT
          <213> Homo sapiens

40          <400> 1326
     Arg Ser Phe Xaa Met Lys Gly Xaa Gln Asn Val Phe Xaa Lys Xaa Asn
     1               5               10              15
     Trp Lys Arg Ala Glu Phe Xaa Arg Xaa Glu Met Glu Xaa Leu Ser Val
               20              25              30
45   Phe Xaa Ser Tyr Xaa Pro Xaa Glu Pro Asn Cys Arg Ile Xaa Val Lys
               35              40              45
     Asn Leu Ala Lys Xaa Val Gln Xaa Lys Xaa Leu Lys Xaa Ile Phe Gly
               50              55              60
     Xaa Xaa Val Xaa Phe Ser Ser Xaa Xaa Gln Xaa Ile Met Phe Xaa Lys
50   65              70              75              80
     Arg Xaa Xaa Lys Lys Gly Xaa Met Lys Xaa Gln Ala Phe Ile Gly Leu
                     85              90              95
     Pro Asn Glu Lys Ala Xaa Ala Lys Xaa Leu Lys Glu Xaa Asn Gly Xaa
                     100             105             110
55   Xaa Leu Phe Gly Lys Pro Met Xaa Val Gln Phe Ala Arg Xaa Xaa Xaa
               115             120             125
     Pro Xaa Gln Asp Pro Lys Glu Gly Lys Xaa Lys Xaa
               130             135             140

60          <210> 1327
          <211> 214
          <212> PRT
          <213> Homo sapiens
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```
        <400> 1327
      Gln Lys Asp Tyr Glu Glu Ser Ser Trp Asp Ser Glu Ser Leu Cys Glu
       1               5                  10                  15
  5   Thr Val Ser Gln Lys Asp Val Cys Leu Pro Lys Ala Thr His Gln Lys
                   20              25              30
      Glu Ile Asp Lys Ile Asn Gly Lys Leu Xaa Glu Ser Pro Asp Asn Asp
                   35              40              45
      Gly Phe Leu Lys Ala Pro Cys Xaa Met Lys Val Ser Ile Pro Thr Lys
 10      50              55              60
      Ala Leu Xaa Leu Met Asp Met Gln Thr Phe Lys Ala Glu Pro Pro Glu
      65              70              75                  80
      Lys Xaa Ser Ala Phe Glu Pro Ala Ile Glu Met Gln Lys Ser Val Pro
                   85              90              95
 15   Asn Lys Ala Leu Glu Leu Lys Asn Glu Xaa Thr Leu Arg Ala Asp Gln
                  100             105             110
      Met Phe Pro Ser Xaa Ser Lys Gln Lys Lys Xaa Glu Glu Asn Ser Trp
                  115             120             125
      Asp Ser Xaa Ser Leu Xaa Glu Thr Val Ser Gln Lys Asp Val Cys Val
 20       130             135             140
      Pro Lys Ala Thr His Gln Lys Glu Met Asp Lys Ile Ser Gly Lys Leu
      145             150             155             160
      Glu Asp Ser Thr Ser Leu Ser Lys Ile Leu Asp Thr Val His Ser Cys
                  165             170             175
 25   Glu Arg Xaa Xaa Glu Leu Xaa Lys Asp Pro Val Asn Asn Arg Xaa Xaa
                  180             185             190
      Lys Met Glu Gln Met Lys Lys Lys Phe Trp Cys Xaa Glu Lys Glu Thr
                  195             200             205
      Val Arg Ser Gln Arg Ser
 30       210


        <210> 1328
        <211> 86
        <212> PRT
 35     <213> Homo sapiens


        <400> 1328
      Leu Phe Xaa Asn Cys Lys Xaa Cys Xaa Gly Phe Pro Ser Xaa Leu Met
       1               5                  10                  15
 40   Ser Ser Arg Leu His Ser Ile His Pro Asp Leu Val Xaa Ser Leu Arg
                   20              25              30
      Trp Ser Ala Val Ala Gln Xaa Ser Ala His Cys Lys Leu Cys Leu Pro
                   35              40              45
      Gly Ser Arg His Ser Pro Ala Thr Ala Ser Arg Val Val Gly Leu Gln
 45       50              55              60
      Ala Pro Ala Thr Thr Pro Thr Tyr Phe Phe Phe Cys Ile Phe Ser Arg
      65              70              75                  80
      Asp Gly Phe Xaa Pro Cys
                   85
 50
        <210> 1329
        <211> 77
        <212> PRT
        <213> Homo sapiens
 55
        <400> 1329
      Val Pro Xaa Leu Gln Lys Xaa Xaa Arg Ile Pro Ile Xaa Pro Asp Glu
       1               5                  10                  15
      Gln Gln Thr Ser Phe Asn Pro Pro Arg Ser Arg Xaa Val Thr Gln Val
 60                20              25              30
      Glu Cys Ser Gly Ala Xaa Phe Gly Ser Leu Gln Thr Leu Pro Pro Arg
                   35              40              45
      Phe Thr Pro Phe Ser Cys His Ser Leu Pro Ser Ser Gly Thr Thr Gly
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        50                      55                      60
    Ala Cys His His Ala His Leu Phe Phe Phe Leu Tyr Phe
    65                      70                      75


            <210> 1330
            <211> 189
            <212> PRT
            <213> Homo sapiens


            <400> 1330
    Tyr Asp Asp Asp Asp Asp Asp Trp Asp Trp Asp Glu Gly Val Gly Lys
     1               5                   10                  15
    Leu Ala Lys Gly Tyr Val Trp Asn Gly Gly Ser Asn Pro Gln Ala Asn
                20                  25                  30
    Arg Gln Thr Ser Asp Ser Ser Ser Ala Lys Met Ser Thr Pro Ala Asp
                35                  40                  45
    Lys Val Leu Arg Lys Phe Glu Asn Lys Ile Asn Leu Asp Lys Leu Asn
                50                  55                  60
    Val Thr Asp Ser Val Ile Asn Lys Val Thr Glu Lys Ser Arg Gln Lys
    65                  70                  75                  80
    Glu Ala Asp Met Tyr Arg Ile Lys Asp Lys Ala Asp Arg Ala Thr Val
                    85                  90                  95
    Glu Gln Val Leu Asp Pro Arg Thr Arg Met Ile Leu Phe Lys Met Leu
                    100                 105                 110
    Thr Arg Gly Ile Ile Thr Glu Ile Asn Gly Cys Ile Ser Thr Gly Lys
                115                 120                 125
    Glu Ala Asn Val Xaa His Ala Ser Thr Ala Asn Gly Glu Ser Arg Ala
                130                 135                 140
    Ile Lys Ile Tyr Lys Thr Ser Ile Leu Val Phe Lys Asp Arg Asp Lys
    145                 150                 155                 160
    Tyr Xaa Ser Gly Glu Phe Xaa Phe Arg His Gly Tyr Cys Lys Gly Asn
                    165                 170                 175
    Pro Xaa Lys Met Xaa Lys Thr Trp Ala Xaa Lys Arg Lys
                    180                 185


            <210> 1331
            <211> 126
            <212> PRT
            <213> Homo sapiens


            <400> 1331
    Ile Leu Ile Ala Leu Leu Ser Pro Phe Ala Val Leu Ala Trp Xaa Thr
     1               5                   10                  15
    Leu Ala Ser Phe Pro Val Leu Met Gln Pro Phe Ile Ser Val Met Ile
                20                  25                  30
    Pro Leu Val Asn Ile Leu Asn Lys Ile Ile Leu Val Leu Gly Ser Asn
                35                  40                  45
    Thr Cys Ser Thr Val Ala Leu Ser Ala Leu Ser Leu Met Arg Tyr Ile
                50                  55                  60
    Ser Ala Ser Phe Cys Leu Asp Phe Ser Val Thr Leu Phe Met Thr Glu
    65                  70                  75                  80
    Ser Val Thr Phe Ser Leu Ser Lys Leu Ile Leu Phe Ser Asn Phe Arg
                    85                  90                  95
    Lys Thr Leu Ser Ala Gly Val Asp Ile Leu Ala Glu Leu Leu Ser Glu
                    100                 105                 110
    Val Cys Arg Phe Ala Cys Gly Leu Leu Pro Pro Phe Gln Thr
                115                 120                 125


            <210> 1332
            <211> 241
            <212> PRT
            <213> Homo sapiens
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```
        <400> 1332
    Ser Gly Cys Gln Thr Trp Pro Met Gln Ile Xaa Ser Asp Phe Asn Met
    1               5                   10              15
    Leu Xaa Pro Gly Xaa Xaa Val Xaa Ile Ile Asp Val Ser Pro Val Arg
5           20                  25              30
    Gly Gly Arg Xaa Thr Pro His Ala Leu Glu Phe Leu Arg Lys Asp Cys
            35                  40              45
    Ala Asn Val Asn Asp Phe Phe Met Arg His Ser Val Ala Val Met Thr
        50              55              60
10  Val Arg Glu Leu Phe Glu Phe Val Thr Asp Pro Ser Ile Thr His Glu
    65              70                  75                  80
    Asn Met Asp Ala Tyr Leu Ser Lys Ala Met Glu Ile Ala Ser Gln Arg
                85                  90                  95
    Thr Lys Glu Glu Arg Ser Ser Gln Asp His Val Asp Glu Glu Val Phe
            100                 105                 110
15  Lys Arg Ala Tyr Ile Pro Arg Thr Leu Asn Glu Val Lys Asn Tyr Glu
            115                 120                 125
    Arg Asp Met Asp Ile Ile Met Lys Leu Lys Glu Glu Asp Met Ala Met
            130                 135                 140
20  Asn Ala Gln Gln Asp Asn Ile Xaa Tyr Gln Thr Val Thr Gly Leu Lys
    145                 150                 155                 160
    Lys Asp Leu Ser Gly Val Gln Lys Val Pro Ala Leu Leu Glu Asn Gln
                165                 170                 175
    Val Glu Glu Arg Thr Cys Xaa Asp Ser Glu Asp Ile Gly Ser Xaa Glu
25              180                 185                 190
    Cys Xaa Asp Thr Asp Xaa Glu Glu Gln Gly Asp His Ala Arg Pro Lys
            195                 200                 205
    Lys His Thr Thr Asp Pro Asp Ile Asp Lys Lys Glu Arg Lys Lys Met
            210                 215                 220
30  Val Lys Glu Ala Gln Arg Glu Lys Arg Lys Asn Lys Ile Pro Lys His
    225                 230                 235                 240
    Val
```